THE LANCET.

A Journal of British and Foreign Medicine, Surgery, Obstetrics, Physiology, Chemistry, Pharmacology, Public Health, and News.

Telegrams—LANCET, WESTRAND LONDON *Telephones*—GERRARD 4314 & 4315 *Offices*—423, Strand, London, W.C. 2

No. XXVI. OF VOL. II., 1922. LONDON, SATURDAY, DECEMBER 23, 1922. Pp. 112—Price 1s.
No. 5182. Vol. CCIII. Founded 1823. Registered as a Newspaper. Published Weekly. Annual Subscription Inland £2 2s. Abroad £2 10s.

By H. D. GILLIES, C.B.E., F.R.C.S.,
Plastic Surgeon, Queen's Hospital, Sidcup; Prince of Wales' Hospital, London, N.; and St. Andrew's Hospital, Dollis Hill, London.

PLASTIC SURGERY OF THE FACE.

424 pages. 844 Illustrations. Price £3 3s.

Henry Frowde and Hodder & Stoughton,
The *Lancet* Building, 1, Bedford-street, London, W.C. 2.

ESSENTIALS OF CHEMICAL PHYSIOLOGY. FOR THE USE OF STUDENTS.
By W. D. HALLIBURTON, M.D., F.R.C.P., LL.D., F.R.S., Professor of Physiology in King's College, London. Eleventh Edition. With Coloured Plate and numerous Illustrations. 8vo. 8s. 6d. net.
Longmans, Green & Co., 39, Paternoster-row, London, E.C. 4.

CANCER OF THE BREAST AND ITS TREATMENT
By W. SAMPSON HANDLEY, M.S., M.D.Lond., F.R.C.S.Eng.
Second Edition, Revised and Partly Rewritten.
With 82 Illustrations. 30s. net.
Published for the Middlesex Hospital Press by John Murray, Albemarle-street, London, W.1.

SECOND EDITION. In 2 vols. 45s. net.
DEFORMITIES, including DISEASES of the BONES and JOINTS. A Text-book of Orthopædic Surgery. Illustrated by 70 Plates and over 1000 Figures, and by Notes of Cases.
By A. H. TUBBY, C.B., C.M.G., M.S.
Second Edition: "The standard text-book in English on the subject."—THE LANCET.
First Edition: "Standard work on the subject in the English language."—BRITISH MEDICAL JOURNAL.
Macmillan & Co., Ltd., St. Martin-street, London, W.C.

Third Edition. With many Illustrations. 12s. 6d. net.
TREATMENT OF DISEASES OF THE SKIN.
By KNOWSLEY SIBLEY, M.D. Camb.
London: Edward Arnold & Co., 41 and 43, Maddox-street, W.1.

Now Ready. Pp. xi. + 269. With 3 Charts. 5s. net.
ON ALCOHOLISM: Its Clinical Aspects and Treatment.
By FRANCIS HARE, M.D., Medical Superintendent of the NORWOOD SANATORIUM, Beckenham.
"Marked by candour, common sense, and moderation ..... likely to become the standard text-book."—BRITISH MEDICAL JOURNAL.
London: J. & A. Churchill, 7, Great Marlborough-street.

NOW READY. Demy 8vo. Pp. xii. + 196. With 50 Figs.
Price 10s. 6d. net (postage 6d.).
DISEASES OF THE HEART:
A HANDBOOK FOR PRACTITIONERS AND STUDENTS
CONTAINING AN ACCOUNT OF CLINICAL ELECTROCARDIOGRAPHY.
By I. HARRIS, M.D., L.R.C.P.(Ed.),
Hon. Physician in Charge, Cardiographic Department, Liverpool Northern Hospital.
Baillière, Tindall & Cox, 8, Henrietta St., Covent Garden, W.C.2.

Just Published. With 23 Illustrations, including 2 Plates.
Demy 8vo. 9s. net, postage 6d.
OPHTHALMIC SURGERY.
By V. NESFIELD (Major, I.M.S., ret.), F.R.C.S. Eng.
Ophthalmic Surgeon, The Queen's Hospital for Children, Bethnal Green, London, E.; late Surgical Specialist, 5th Mhow Division, and Civil Surgeon, U.P. and Assam, India.
"We recommend the book as the outcome of an obviously original mind presenting knowledge and ideas in a pleasing form."—LANCET.
London: H. K. Lewis & Co. Ltd., 136 Gower-street, W.C.1.

H. K. LEWIS & CO. LTD.,
MEDICAL PUBLISHERS AND BOOKSELLERS.
CHRISTMAS HOLIDAYS, 1922.
All Departments will be closed from SATURDAY, December 23rd, to TUESDAY, December 26th inclusive.
London: 136 & 140, Gower Street, 24 & 28, Gower Place, W.C. 1.

OXFORD MEDICAL PUBLICATIONS.

CATARACT AND ITS TREATMENT.
By H. KIRKPATRICK, M.B.,
Lt.-Col. Indian Medical Service (retired); late Superintendent, Government Ophthalmic Hospital, Madras.
Pp. 201. Price 12s. 6d. net.
Henry Frowde and Hodder and Stoughton.

Just Published. Pp. viii. + 183. Price 5s. net.
AIDS TO ORGANOTHERAPY,
By IVO GEIKIE COBB, M.D., M.R.C.S.; Neurologist, Ministry of Pensions; late Assistant to Out-Patient Physician, Middlesex Hospital.
London: Baillière, Tindall & Cox, 8, Henrietta-st., Covent Garden, W.C

By LESLIE THORNE THORNE, M.D., B.S., &c.
NAUHEIM TREATMENT in ENGLAND of DISEASES OF THE HEART AND CIRCULATION.
Fifth Ed. Enlarged and re-written, much new matter. Price 5s. net.
Pp. vi. + 160. With 27 Photographs of RESISTANCE-Exercises and 65 other Illustrations. Polygraphs, &c.
"It is the best and most practical work on the subject."
—WEST LONDON MEDICAL JOURNAL.
Baillière, Tindall & Cox, 8, Henrietta-st., Covent Garden, London, W.C.

OXFORD MEDICAL PUBLICATIONS.

HEWITT'S ANÆSTHETICS AND THEIR ADMINISTRATION. Fifth Edition. Edited by HENRY ROBINSON, M.A., M.D., B.Ch. Demy 8vo. Cloth. Illustrated. Price 30s. net.
BEESLY & JOHNSTON'S MANUAL OF SURGICAL ANATOMY. Second Edition. Crown 8vo. Cloth. Illustrated in Colour and Black and White. Price 18s. net.
CROWTHER'S PRACTICAL PHYSICS. Crown 8vo. Cloth. Illustrated. Price 10s. 6d. net.
COLEMAN'S NOTES ON MATERIA MEDICA, PHARMACOLOGY AND THERAPEUTICS. Fifth Edition. Dedicated to DOUGLAS GABELL, L.R.C.P., M.R.C.S., L.D.S., and HAROLD AUSTEN, M.D., B.S. Lond., L.D.S. (the former authors of this Work). Crown 8vo. Cloth. Price 10s. 6d. net.
WARING'S MANUAL OF OPERATIVE SURGERY. Fifth Edition. Crown 8vo. Cloth. 572 Illustrations. Price 15s. net.
Henry Frowde and Hodder & Stoughton,
The *Lancet* Building, 1, Bedford-street, London, W.C. 2.

Second Edition

DISEASES OF THE CHEST
and the Principles of Physical Diagnosis

Beautifully Illustrated.

"The authors have endeavoured to teach as far as possible by means of illustrations, many of them photographs of frozen sections from the cadaver previously hardened in formalin. Indeed, the illustrations are one of the most striking features of the book, and form a most valuable and instructive series, well chosen, and well reproduced by the printer. The book may be warmly commended to the senior medical student, and it should be in the hands of all his medical instructors."—BRITISH MEDICAL JOURNAL.

CONTAINS A MOST IMPORTANT CHAPTER ON INFLUENZA

Octavo of 782 pages, with 413 illustrations, 5 in colours. By G. W. NORRIS, M.D., and H. R. M. LANDIS, M.D., Assistant Professors of Medicine, University of Pennsylvania. Cloth, 45s. net.

W. B. Saunders Company, Ltd., 9, Henrietta Street, London, W.C.2.

Farbwerke vorm Meister Lucius & Brüning, Hoechst on Main, Germany.

IODHYDRIN Hoechst

"ALIVAL"

Trade Mark.

An organic iodine preparation for manifold therapeutical uses.

PROPERTIES:
Iodine content 63 per cent.; easily soluble in water; agreeable taste; very well tolerated; may be employed internally and externally; suitable for intramuscular and intravenous injection; good rate of absorption; polytrope action.

INDICATIONS:
Tertiary and secondary stages of syphilis, arteriosclerosis, asthma, and all other cases where iodine is indicated.

DOSAGE:
INTERNAL: Several times daily 1 tablet of 5 grains.
EXTERNAL: 10–25 per cent. ointments. Suppositories may contain 15 grains each.
Intramuscular and intravenous injections with the contents of one ampule = 15 grains.

ORIGINAL PACKING:
Tubes of 10 or 20 × 5 grain "Alival" Iodhydrin tablets.
Boxes of 5 or 10 ampules containing 1 c.c. = 15 grains "Alival" Iodhydrin.

Literature and all particulars :—A. C. HENRY

Telephone: MINORIES 2335. 19, St. Dunstan's Hill, LONDON, E.C.3. Telegrams: "Eumydrin, Phone, London."

USE LESLIES' ZŌPLA (ZINC OXIDE PLASTER)

A PERFECT STRAPPING

ZŌPLA is tenaciously Self-adhesive, will not slip, will stand any strain imposed on it, is Antiseptic, and is absolutely Non-irritating. The Sale is steadily growing. British Made.

Supplied on White and Flesh-colour Cloths, also on Holland, on Spools ½" to 4", 5 or 10 yard lengths, in rolls 7" and 12" wide. Also on moleskin, chamois leather, felts, and waterproof cloth. **SAMPLES ON REQUEST.**

ZŌPLA is made by the firm with the reputation for BROWN HOLLAND STRAPPING (Original make).

[Telephone—Walthamstow 686

LESLIES LTD., High Street, Walthamstow, LONDON, E.17

Valentine's Meat-Juice

In **Hospital** and **Private Practice** and **in their own persons** when ill, **Physicians** have **demonstrated** the **power** of **Valentine's Meat-Juice** to **Sustain** and **Strengthen** the weakened **Vital Forces** when the **Digestive Organs** are **Impaired.**

Debility, Exhaustion, and Anæmia.

Dr. Julian Calleja, *Pres. Royal Academy of Medicine of Madrid, Spain* "It is with the greatest satisfaction that I inform you that I consider VALENTINE'S Preparation of MEAT-JUICE to be of a very superior order for invigorating the nervous system, for which I use it myself and prescribe it to my patients."

Ross H. Skillern, M.D., *Laryngologist Rush Hospital for Consumption, Philadelphia Pa:* "I, myself, had the misfortune to be seized with an attack of Cerebro Spinal Meningitis and after a critical illness recovered. My mainstay during the attack was VALENTINE'S MEAT-JUICE, and I can assure it materially aided in my recovery."

For Sale by European and American Chemists and Druggists.

VALENTINE'S MEAT-JUICE COMPANY,
D5 **RICHMOND, VIRGINIA, U.S.A.**

THE LANCET.

No. 5182. LONDON, SATURDAY, DECEMBER 23, 1922. Vol. CCIII.

CONTENTS.

THE WHOLE OF THE LITERARY MATTER IN THE LANCET IS COPYRIGHT.

BRADSHAW LECTURE on the Surgery of the Spinal Cord. By Sir WILLIAM THORBURN, K.B.E., C.B., F.R.C.S. 1313

ORIGINAL ARTICLES.

Treatment of Lupus by the Diathermy Condenser Spark. By A. E. MILNER, M.R.C.S.—(*Illustrated*) 1316

Effect of Radiation with the Mercury-Vapour Quartz Lamp on the Growth of Rats Fed on a Diet Deficient in Vitamin A. By E. MARGARET HUME.—(*Illustrated*) 1318

Effect of Radiation with the Mercury-Vapour Quartz Lamp on the Growth of Rats Fed on a Diet Deficient in the Fat-Soluble Growth-Promoting Factor. By H. GOLDBLATT, M.D., and K. M. SOAMES, M.Sc.—(*Illustrated*) .. 1321

Drugs in the Treatment of Diabetes Mellitus. By P. J. CAMMIDGE, M.D., J. A. CAIRNS FORSYTH, F.R.C.S., and H. A. H. HOWARD, B.Sc..... 1324

Some Cases of Obscure Infection. By R. FIELDING-OULD, M.D., M.R.C.P.—(*Illustrated*) 1328

Spirochætes in Blackwater Fever: French Work in the Belgian Congo. By C. M. WENYON, C.M.G., C.B.E., M.B. 1346

The Psychological Treatment of Criminals in Various Countries. By W. A. POTTS, M.D. .. 1365

MEDICAL SOCIETIES.

Royal Society of Medicine: Section of Medicine: Some Experiences with the Everest Expedition 1330

Society of Medical Officers of Health: Maternity and Child Welfare Group 1331

Liverpool Medical Institution 1332

Manchester Medical Society 1332

Cardiff Medical Society.. 1333

Brighton and Sussex Medico-Chirurgical Society..... 1334

Midland Medical Society. 1334

Aberdeen Medico-Chirurgical Society.... 1335

Royal Medico-Chirurgical Society of Glasgow.... 1335

Royal Academy of Medicine in Ireland: Pathological Section... 1335

REVIEWS AND NOTICES OF BOOKS.

Surgical and Mechanical Treatment of Peripheral Nerves. By Byron Stookey, A.M., M.D... 1336

Praktikum der Gewebepflege der Explantation besonders der Gewebezüchtung. By Dr. Rhoda Erdmann..... 1336

Typhus Fever. By J. M. Mitchell and others.... 1336

A Handbook of Aural Surgery. By William Wilson, M.D., B.Sc.... 1336

A Manual of Clinical Diagnosis, by Means of Laboratory Methods. Tenth edition. By C. E. Simon 1337

South Sea Reminiscences. By T. R. St.-Johnston 1337

Passing Songs. By William Barr..... 1337

Poems, 1920–1921. By K. W. Monsarrat..... 1337

Practical Chemical Physiology. By W. W. Taylor, M.A., D.Sc.... 1337

A Text-book of Organic Chemistry. By Prof. Joseph Scudder Chamberlain, Ph.D.... 1338

Research Studies in Medical History. Translated by Sir D'Arcy Power, K.B.E., M.B.. 1338

British Journal of Children's Diseases.... 1338

LEADING ARTICLES.

SIGHT-TESTING OPTICIANS 1339

EXPERIMENTAL RICKETS. 1340

THE PUBLIC HEALTH MEDICAL SERVICE.... 1340

HEALTH OF MISSIONARIES 1341

ANNOTATIONS.

A Christmas Appeal for Russian Doctors 1342

Tuberculosis in the Sudan 1342

Dyspepsia in Early Childhood 1342

Presentation to Prof. Sharpey-Schafer 1343

Treatment of Werlhof's Disease by Protein Shock 1343

The Technique of Aural Treatment 1343

Heart-Block and the Stokes-Adams Syndrome 1344

The Works Doctor in France 1344

The Problem of Tuberculosis on Active Service in America 1345

The Clinical Lecture in Print and in Practice.. 1345

The Bacteriology of Obscure Infections ... 1346

SPECIAL ARTICLES.

Permanent Committee of the Office International d'Hygiène Publique: Ordinary Session of 1922 1347

Health Resorts and Winter Sports..... 1349

King Edward's Hospital Fund for London: List of Awards 1350

Switzerland: Overcrowding in the Medical Profession 1352

The Medical Insurance Agency 1353

Report on Sight-Testing by Opticians 1353

PUBLIC HEALTH SERVICES.

The School Nurse 1355

Reports of Medical Officers of Health 1355

School Medical Service .. 1356

THE SERVICES.

Royal Naval Volunteer Reserve.—Royal Army Medical Corps.—Royal Air Force 1357

CORRESPONDENCE.

Present-day Outlook on Tuberculosis: Ætiological and Therapeutic (Sir R. W. Philip)..... 1357

Justifiable Fœticide (Dom Francis Izard) 1358

Ergot and the Function of the British Pharmacopœia (Sir Nestor Tirard) 1358

Dormant Filarial Infection (Dr. N. A. Dyce Sharp) 1358

Antral Suppuration and Dental Infection (Mr. Edward D. D. Davis).. 1358

Diseases of the Heart (Dr. I. Harris)..... 1359

Absorption of Carbolic Acid Through the Skin (Mr. R. Eccles Smith).. 1359

The Merits of Proportional Representation (Mr. Oscar M. Wihl)..... 1360

PARLIAMENTARY INTELLIGENCE.

Notes on Current Topics: Prorogation of Parliament 1360

House of Commons: Education of Physically Defective Children.—The Use of Insulin.—Hardshipunder Dentists Act.—Notification of Small-pox. — Insured Persons and Private Medical Treatment.—Methods of Medical Boards.—Schools for Physically Defective Children 1360

MEDICAL NEWS.

University of Oxford.... 1362

Royal College of Surgeons of England 1362

University of Liverpool.. 1362

University of Edinburgh 1363

Metropolitan Hospital Sunday Fund 1346

Women Sanitary Inspectors and Health Visitors Association 1360

Newcastle-upon-Tyne and Northern Counties Medical Society..... 1360

Royal Statistical Society 1363

Société Internationale de Chirurgie 1363

Typhus Fever in North-West Mayo 1363

Association of County M.O.H.'s Annual Dinner 1363

Medico-Legal Society Annual Dinner 1363

Old Epsomian Club Annual Dinner 1364

London Hospital Medical College: Liddle Triennial Prize..... 1364

Bethlem Royal Hospital Post-Graduate Course. 1364

Modified Milk for Infants 1364

Christmas and New Year Greetings by Cable.... 1364

Post-Graduate Course on Infant and Child Welfare 1364

The late Dr. H. Lucas... 1364

International Illegitimacy Statistics..... 1364

NOTES, SHORT COMMENTS, ETC.

Colonial Health Reports . 1368

A Romance of Medical Life 1368

Tissue-Necrosis Caused by Coloured Pencil 1368

Appointments 1364

Vacancies..... 1364

Births, Marriages, Deaths 1365

GONOCOCCAL INFECTION IN THE MALE.

For Students and Practitioners. By **NORMAN LUMB**, O.B.E., M.B., B.S.Lond., F.R.C.S.Eng. With 165 Figures and 13 Three-colour Plates. Demy 8vo. **25s.** net; postage inland, 1s.

"Should certainly be in the hands of all called upon to deal with gonorrhœa in the male."—THE MEDICAL TIMES.

By the same Author.

THE URETHROSCOPE IN THE DIAGNOSIS AND TREATMENT OF URETHRITIS. 13 Plates (10 Coloured). Demy 8vo. **10s. 6d.** net; postage inland, 1s.

"We are glad to welcome a work that should prove of real use to those engaged in the treatment of gonorrhœa. . . . Both Major Lumb and his publishers are to be congratulated on the quality of the coloured plates."—BRITISH MEDICAL JOURNAL.

ZUMBUSCH'S ATLAS OF SYPHILIS.

With 63 Illustrations taken direct from Nature by Colour Photography, and one single-colour illustration. Medium 4to. Cloth **30s.** net; postage inland, 1s. 6d. net. *Just Published.*

WHITE AND BROWN'S ATLAS OF THE PRIMARY AND CUTANEOUS LESIONS OF ACQUIRED SYPHILIS IN THE MALE. Intro. by Lieut.-General Sir **JOHN GOODWIN**, K.C.B., C.M.G., Dir. Gen. A.M.S. With 4 Coloured Lithograph Plates and 31 Plates on art paper. Demy 4to. Cloth. **27s. 6d.** net; half bound in leather, **31s. 6d.** net; postage inland, 1s.

"The authors of this Atlas are to be congratulated, and their work should be of great service to medical students and workers in venereal clinics all the world over."—BRITISH MEDICAL JOURNAL.

JOHN BALE, SONS & DANIELSSON, LTD., 83-91, Great Titchfield Street, London, W.1.

In Two Volumes. 59 Plates and 196 Illustrations in Text. Large 8vo. 1400 pages. 42s. net, postage 1s. 6d.
Or in Separate Volumes. Vol. I. General Surgery. 15s. net. Vol. II. Abdominal Surgery. 30s. net.

SURGICAL CONTRIBUTIONS: FROM 1861—1916.

By RUTHERFORD MORISON, M.A., M.B., F.R.C.S. Edin. and Eng.,

Cons. Surg., Royal Victoria Infirmary, Newcastle-on-Tyne; Prof. of Surg., Univ. of Durham.

With a Preface and full Subject Index contributed by W. D'OYLY GRANGE, M.D., C.M.

"*On nearly every page are points of interest.*"—THE LANCET. "*A mine of valuable information.*"—BRITISH JOURNAL OF SURGERY.

Bristol: JOHN WRIGHT & SONS LTD. **London: SIMPKIN & CO. LTD.**

JUST PUBLISHED. Third Edition. Fully Revised and Enlarged to Super Royal 8vo. £2 2s. *net. Postage* 1s.

AN INDEX OF PROGNOSIS

AND END-RESULTS OF TREATMENT.

Edited by **A. RENDLE SHORT**, M.D., B.S., B.Sc.Lond., F.R.C.S.Eng., *Member of Council, British Assoc. of Surgs.; Exam. in Physiol. for the F.R.C.S.; Surg., Bristol Roy. Infirm.; Lect. on Physiol., Univ. of Bristol; in conjunction with 26 distinguished contributors*

"We have formed a high opinion of the value of the work."—BRIT. MED. JOUR.

JUST PUBLISHED. Second Edition. Fully Revised and Enlarged. With 43 Illustrations. Demy 8vo. Cloth. 8s. *net. Postage 5d.*

ELECTRIC IONIZATION: A PRACTICAL INTRODUCTION TO ITS USE IN MEDICINE AND SURGERY.

By **A. R. FRIEL**, M.A., M.D.Dublin, F.R.C.S.I., *Aural Specialist, Lissonia and Almeric Paget Ionization Clinics for Otorrhœa; Aural Specialist, Ministry of Pensions Boards, London District; Late Physician for the Throat, Nose and Ear, General Hospital, Johannesburg; and late Aural Surgeon and Bacteriologist, No. 1. South African General Hospital, B.E.F., France.*

"The book is well set out and can be recommended."—BRIT. MED. JOUR.
"Gives a clear account of the process of ionization."—EDIN. MED. JOUR.

BRISTOL: JOHN WRIGHT & SONS LTD. LONDON: SIMPKIN & CO. LTD.

ELLIS'S MEDICAL BOOKSERVICE

IMPORTANT ANNOUNCEMENT

At the above address, there has recently been opened—

A NEW AND COMMODIOUS BOOK SALOON AND READING ROOM UPON THE FIRST FLOOR.

All Members of the Medical Profession are cordially invited to call and inspect the improved facilities, and to test The Service, which can send by return of post

ALL CURRENT MEDICAL BOOKS.
(American books specially obtained without delay.)

Address for all communications:—

H. R. ELLIS, Medical Bookseller, **9, Lovell's Court, Paternoster Row, London, E.C.4**

Price 1s. With Illustrations.

APPLICATION OF TRUSSES

to HERNIÆ. Clinical Lecture delivered at King's College Hospital. By the late JOHN WOOD, F.R.S., Senior Surgeon to King's College Hospital. Reprinted from "Medical Examiner."

London: Matthews Brothers, 10, New Oxford Street, W.C.

STAMMERING. SPEECH DEFECTS. VOICE TRAINING.

BEHNKE METHOD. Est. 1882.

Carried on by Miss BEHNKE, at 39, Earl's Court-square, S.W.5.

"Pre-eminent success in the education and treatment of stammering and other speech defects."—*The Times.*
"Thoroughly physiological principles."—*The Lancet.*
"The method is scientifically correct and perfectly effective."—*Guy's Hospital Gazette.*
From a Harley Street Specialist.—"The condition is to a great extent a psychical one, and the admirable results obtained by yourself and your parents have in my opinion been to a great extent due to your personal psychical influence over your subjects. You are at liberty to use this expression of my opinion." (*This letter may be seen.*)
"Stammering: Cleft Palate Speech: Lisping."

NEW EDITION. Revised and Enlarged. 3s. 10½d. post free, of Miss BEHNKE, 39, Earl's Court-square, S.W. 5.

STAMMERING

W. J. KETLEY, "Tarrangower," Brondesbury, N.W

30 years colleague of late B. BEASLEY, Brampton Park, Huntingdon. Those interested in the subject should write for his book, which will be sent post free.

Works by Sir Charles A. Ballance, K.C.M.G., etc.

A GLIMPSE INTO THE HISTORY OF THE SURGERY OF THE BRAIN. 10s. 6d. net.
ESSAYS ON THE SURGERY OF THE TEMPORAL BONE. £7 7s. net.
THE SURGERY OF THE HEART. 10s. 6d. net.

Macmillan and Co.

CAPSICUM

"GAMGEE TISSUE"

Sole Proprietors and Manufacturers:

ROBINSON & SONS, Limited, Chesterfield.

(DEES)

AURORASCOPE

THE IDEAL XMAS AND NEW YEAR'S GIFT.

Particulars and Demonstrations:

THE AURORASCOPE CO., LTD.,
Fulwood House, Fulwood Place, Holborn, W.C. 1

Bradshaw Lecture

ON THE

SURGERY OF THE SPINAL CORD.

Delivered at the Royal College of Surgeons of England on Dec. 8th, 1922,

BY SIR WILLIAM THORBURN, K.B.E., C.B., F.R.C.S. ENG.

IT is now nearly 30 years since I had the honour of addressing an audience in this theatre. In the Hunterian lectures delivered in 1894 I endeavoured to lay down the basis for the surgical treatment of diseases and injuries of the spinal cord; and I was then mainly occupied with questions of anatomy and physiology, and especially with the differentiation of the spinal segments. The observations then made, have, however, now passed into the domain of history, so that to-day I propose only to give you some account of my subsequent operative experience, and of such modifications as I have been led to adopt in the views then expressed upon the subject of treatment.

Thirty years ago I could draw conclusions only from à priori considerations, with a very few personal observations, and with the assistance of some 70 published cases drawn largely from the pre-Listerian era; but since that time, although I have always adopted a very conservative line of action, I have now performed the operation of laminectomy 98 times—incidentally this number of cases is convenient, inasmuch as the results obtained may practically be taken as expressing percentages of the whole.

DEFINITION OF TERMS.

Before proceeding to place these results before you, I think, however, that it is necessary that I should define one or two of the terms which I propose to use. The first of these with which we are concerned is the expression "death from operation." It will be obvious that in operating upon diseases and injuries of the spinal cord, and especially in the earlier operations, there have been a large number of cases inevitably fatal from the nature of the lesion, and it would be quite unreasonable to attribute these deaths to operation itself. Hence I shall speak of "death" only in those cases, six in number, in which I consider that the fatal issue was determined or accelerated by the operation itself, while I shall include as "unrelieved" a very considerable number of cases in which the disease or injury merely ran its inevitable course.

On the other hand, when I use the term "cured" I do not imply that the patient was entirely relieved from all symptoms, and I mean only that he had so far recovered as to be able to return to his own or to some other useful occupation in life, or, in a few instances, that at the time when he was lost sight of he was obviously making such progress that such an end was about to be obtained. I do not think that I have ever met with a case of paraplegia submitted to operation in which no neurological defects could be afterwards detected, as minor sensory defects, exaggeration of the reflexes and the like, almost invariably remain.

The definition of the term "improved" is also necessary. I have not included under this heading cases presenting slight but economically useless variation. I have, however, included a somewhat miscellaneous group in which a very definite result was obtained; for example, where a patient was at the point of death with a sarcoma pressing upon the second cervical segment, and where the operation was followed by two months of life of reasonable comfort, I have described the case as "improved"; and also where a completely paraplegic patient is enabled, even with assistance, to leave his bed and move about the room when last seen. I have placed him in the same category.

Lastly, I have described as "unrelieved," or "with no result," not only those cases in which I have definite notes that relief, if any, was trivial, but also all the cases, which I regret to say are rather numerous, in which my very defective notes give me no guidance as to the ultimate result.

GENERAL RESULTS OF OPERATIONS.

Having made this position clear, I may now give the general results of 98 operations as some indication of the dangers and value of laminectomy per se; although it is clearly impossible from many points of view to consider in this collective way the various conditions which have been operated upon. I find, then, that in the total number of cases there are 6 in which I consider that death was the direct result of operation; 2 in which the operation was undoubtedly harmful; 20 in which the patient was cured so far as we can reasonably hope for cure; 17 in which his condition was improved, and 53 in which no result can be claimed. We have here no such brilliant picture of surgical advance as can be claimed in many regions of the body, and I do not think that we can ever hope to obtain results in the least degree comparable with some of the triumphs of modern surrgey. We are dealing with structures which present practically no physiological capacity for repair. Improvements in technique can do little, if anything, to overcome this essential difficulty, and all that we can hope for is that in a small proportion of instances our intervention may be of value.

Harmful Results.

It will be useful to regard first the darker side of the picture, and to turn to those cases in which the operation has been definitely harmful. Of the six deaths one was due to an error of technique committed many years ago, when I had not yet appreciated the significance of the fact that the laminæ were ankylosed together in a case of spinal caries, and when, having removed these laminæ, I found that there was no longer any supporting bony spine. With our modern knowledge such an error is not likely to be repeated. Another patient, a very old man, died from bronchopneumonia a week after laminectomy. There are, however, four cases of death in which it appears to me that a special danger was encountered, and can in future be avoided. These four deaths all followed operation in the upper cervical region: in each there was pressure upon the contents of the spinal canal, and in each this pressure was relieved. Two of the patients did not regain consciousness. One died from respiratory paralysis on the day after operation, and the fourth from rapid extension upwards of his paraplegia, with respiratory paralysis, at the end of two and a half days.

In all these cases I think I can definitely exclude the possibility of any mechanical injury to the nervous structures, while we have a definite clue as to their nature from observations in other regions. Thus after a good many operations upon the dorsal region of the spinal cord the removal of the source of pressure has been followed by a definite increase in paraplegia and in vesical paralysis, although such increase has passed away, generally within a week, and has been followed by complete ultimate recovery. Probably, then, we have a phenomenon with which we are also familiar in cerebral surgery—that is to say, a temporary œdema, with or without small hæmorrhages, and directly due to the relief of tension. Such œdema appears to clear up and to leave no ill-effects in about a week's time, but naturally if it occurs in the upper cervical region the resulting paralysis of respiration will not allow sufficient time for recovery. In the future, therefore, with high cervical lesions I should certainly operate in at least two stages, as has, of course, long been found advisable in cerebral surgery.

The two cases in which, although they were not fatal, I consider that harm was done by the operation, are both old examples of operation for caries, and I do not think that at this date I should have submitted either of them to laminectomy. In one the posterior

aspect of the theca was firmly adherent to the laminæ, and the separation of the latter was thereby rendered difficult. This is in my experience a very unusual condition, and in the case to which I am referring it was followed by increase in the severity of paraplegia. The other case was one of marked kyphosis, in which we had much difficulty with the anæsthetic, and in which the patient had to be turned over during the operation while artificial respiration was conducted. I suggest, though I cannot prove, that the fact that his spastic paraplegia was followed by complete flaccidity of the lower limbs with increase of sensory and other phenomena may have been due to a fracture of the weakened spine at the seat of kyphosis.

CONSIDERATION OF VARIOUS GROUPS OF CASES.

I have dwelt more especially upon these disastrous results because it is from them that we can most clearly discern the pitfalls to be avoided in the future, and we may now turn to the consideration of the various groups of cases operated upon, which I shall arrange under the following headings: Recent injuries, 7; remote injuries, 18; gunshot wounds, 10; spinal caries, 19; syphilitic pachymeningitis, 7; tumours, 19; rhizotomy, 6; miscellaneous, 12.

1. *Recent Injuries.*

From my earliest efforts in spinal surgery I have had no illusions as to the prospect of doing good in most of the injuries of civil life. In the majority of these cases the condition is one of fracture-dislocation, the spine being brought into a position of acute flexion, and the spinal cord thereby crushed at the seat of injury. In very many cases nature immediately repairs any acute kyphosis by recoil of the bones, and thus in a large proportion the pressure on the spinal cord is not maintained and there is no necessity for surgical intervention to remove such pressure. As, however, those which present recoil never undergo physiological recovery it is not reasonable to expect that such recovery will occur in the other group of cases in which the bones have not been immediately restored to their original position. On these grounds I never had any hope of successful operation, except perhaps in two classes of injury—namely, on the one hand those in which only the laminæ or spinous processes were fractured, the vertebral bodies remaining intact; and, on the other, those in which the injury lay beneath the level of the spinal cord and involved only the nerve-trunks of the cauda equina. With regard to the latter, there was more ground for hope of repair than in the case of the supremely vulnerable spinal cord, but I have seldom thought it advisable to operate in quite recent injuries of the cauda equina, as it appeared to me that it was only after the lapse of time that we should be able to determine whether nature herself was about to repair the damage.

Guided by these views, I have operated only in seven cases of recent injury, and I have not succeeded in obtaining real benefit in a single instance. I am aware that distinguished surgeons have recommended much more frequent operation in such cases, but I am not aware of any evidence having been produced that the patients were saved thereby. Hence, then, it appears to me that except in very rare conditions early operation for fractures of the spine with injury to the cord is not likely ever to become a recognised surgical procedure.

2. *Remote Injuries.*

We may describe as "remote injuries" those in which the operation has not been undertaken until at least a week after the injury has been inflicted, and in the 18 cases in which I have operated personally the interval has extended over very varying periods, the longest of which was seven years. The position is here somewhat different from that of the early fracture. The fact that the patient has survived is in itself an indication that, owing to the position of the injury or to the gravity of the lesion in the spinal cord, there remains at least enough nervous tissue to carry on, more or less imperfectly, the bodily functions. There is also a reasonable possibility that the persistence of paraplegic and other symptoms may be due to conditions surgically removable, such as the presence of blood-clots or the formation and gradual contraction of cicatrices either within or without the spinal dura mater.

Of the 18 cases operated upon we can confidently say that none were in the least degree injured. Six presented a definite amount of improvement, but in two only was this improvement sufficient in extent and degree to possess any real economic value. These results are by no means encouraging as expressed in statistical form, but having regard to the condition of the paraplegic patient, and to the fact that the operation may be undertaken with complete safety, I am still of opinion that in selected cases there ought to be no hesitation in exploring such old injuries, and in removing cicatrices pressing upon the theca or upon the medulla.

3. *Gunshot Injuries.*

With these I can deal very briefly, as they have been made the subject of a Bradshaw lecture (1916) by Sir Charters Symonds, and as I have personally published several reports within the last few years.[1] The nature of the injury here differs so widely from those generally met with in civil life that it is unsafe to draw any conclusions from the one group and apply them to the other. The gunshot wound does not, as a rule, produce a fracture-dislocation with kyphosis, and the vertebral bodies are often intact. In many instances the damage has been inflicted only upon the vertebral processes, and the spinal cord is thus less exposed to complete disorganisation and presents a greater variation of intrinsic injury. So far, then, it might appear that some at least of these wounds will be less intractable than those of civil life, but on the other hand we are met by complications such as the frequent presence of foreign bodies, the almost invariable presence of sepsis, and the often extensive and irremediable bruising of the spinal cord due to the divulsive action of high-velocity missiles.

During the late war I thought it right to operate in only 10 cases of gunshot wound, seven being early operations and three undertaken at a late date. The early operations were really little more than an extension of the general principle of excision of gunshot wounds. Four of these cases were hopeless, and no benefit was obtained, but in three I have every reason to believe that life was saved. Of the old cases one, presenting a very complete paraplegia with vesical paralysis, had a cicatrix in the upper dorsal region, after the removal of which recovery progressed steadily and was still progressing a few months ago when I last heard from the patient. In another the removal of a bullet from the lumbar vertebral canal with an attempt to approximate the divided ends of the cauda equina failed to relieve symptoms. The third was a purely experimental operation undertaken only after careful discussion with the highly educated patient. A large gap in the cauda equina was filled up by the implantation of a portion of one of the patient's sciatic nerves. On general grounds I did not expect to obtain any benefit from such a procedure, but in view of some published cases I thought it right to make the attempt, as the conditions were very favourable and the patient very anxious that it should be done. No benefit ensued.

4. *Caries of the Spine.*

It was in cases of caries of the spine that I at one time looked forward to the most valuable development in the operation of laminectomy, and there can be no doubt that many cases have steadily improved after operation for paraplegia in Pott's disease. During the last 30 years there has, however, been so great an improvement in the non-operative treatment of this condition that the necessity for laminectomy has faded almost to the vanishing point; and it is difficult to say with regard to the earlier cases how far benefit might have been expected without the surgical operation which preceded efficient rest and fixation.

[1] Official Medical History of the War; Keen's Surgery, &c.

The extent to which I have gradually abandoned operation in tuberculosis is perhaps best indicated by the fact that in each decade since 1890 I have performed fewer operations, and that since the year 1910 I have only twice thought it advisable to interfere. At the same time, I must make it clear that at no stage in the evolution of my present views did I operate in spinal caries until after a long period of such rest, fixation, and general care as could be obtained according to the standard of the day.

The 19 cases operated upon include a great proportion of those in which operation was injurious, so that we find in this group two fatal cases and two in which, although they were not fatal, the result was unfavourable. To these I have already referred. On the other hand, seven of the cases, all examples of old-standing or increasing paraplegia, were either "cured" or very greatly benefited so shortly after the operation that I can have no doubt that the latter played a very important part in the rescue of the patient. The results, moreover, in these cases have not only been highly satisfactory but enduring, the oldest standing with which I am acquainted being a man who came to see me 23 years after I had performed laminectomy, having spent the interval at work as a farm labourer. A recurrence of paraplegic symptoms at the end of nearly a quarter of a century was met with only moderate success by recumbent treatment.

On the whole I would certainly not, even at this date, altogether banish laminectomy in the treatment of certain cases of paraplegia due to caries. In those which have given me the best results I have generally found large caseous or even calcified masses pressing upon the theca, and it is difficult to believe that such masses would have undergone absorption under any conditions. The essential difficulty in deciding if and when operation is called for lies, however, in the fact that it should not be undertaken until all other methods have been exhausted, and that unfortunately the necessary delay is only too liable to lead to irremediable damage.

5. *Syphilitic Pachymeningitis.*

In seven cases I have had occasion to operate for pressure lesions of the spinal cord which, although they were recognised as being probably syphilitic in their origin, failed absolutely to yield to antisyphilitic treatment; and in each of these I have found thickening of the dura mater, of the arachnoid, or of both, such thickening frequently constituting firm cicatrices which, as in other regions of the body, we could hardly expect to disappear without mechanical intervention. The cicatrices were in each case excised, and the results were very satisfactory. Three of the seven cases were "cured"; one, imperfectly reported, was probably cured; two which had been left to too late a date derived no benefit; and in one in which I operated only a few days before going abroad for four years I was never able to obtain any record of the issue.

6. *Tumours.*

Under this heading I have to include 19 operations, but it is necessary in order to obtain any clear impression of the conditions met with to divide them into certain minor groups—namely, those tumours which arise from bone; those originating between the bone and theca; those occurring within the theca; those within the medulla itself, and also two cases of spina bifida occulta which are conveniently included at this point.

Malignant Tumours of the Vertebræ.—These are obviously not in themselves amenable to surgical treatment, but there will arise a certain number of cases in which the diagnosis may be difficult or obscure, and if in any such case there is a possibility that we may have an intrathecal tumour there can be no question that an exploratory operation is urgently demanded, as no harm can be done, and the possibility of cure may be lost. Personally I have operated in five cases of malignant vertebral disease, in two of which there was some hope that the disease might be limited to the laminæ. In one case in which death was impending from pressure at the level of the axis the partial removal of a sarcoma of the body of that bone considerably lengthened life, while in another case of laminar disease great relief from symptoms was obtained, but here, as in all five, the ultimate issue was not affected.

Tumours between the Laminæ and Dura Mater.—I have found three tumours so situated. Two of these were sarcomata, and no benefit was obtained. One, which appeared to be a glioma, possibly arising from the roots of a spinal nerve, was readily excised, and the patient was cured.

Intrathecal tumours of the spinal cord undoubtedly yield extremely good results, and it is in this type of case that laminectomy has proved a most valuable asset. Such tumours can generally be recognised with reasonable certainty, and their excision is as a rule a matter of comparative ease. They are, however, by no means very common, or at any rate they do not very commonly come under the notice of the surgeon. The number in which I have personally been fortunate enough to operate is quite small. Of seven operations two had to be abandoned, as the growth was infiltrating the spinal cord and was clearly malignant. Four can definitely be placed among the cases which are cured in the sense in which I have used the term—that is to say that, having been completely paralysed, they were enabled to return to active life and suffered no practical inconvenience. One, a tumour in the upper cervical region, I have already referred to as an example of death from the probably too sudden relief of pressure. Hence of five enucleable intrathecal growths four were cured, and I think the fifth would have been had I recognised earlier the danger of sudden decompression of the cord.

Tumours originating within the Medulla itself.—I have no personal experience of these tumours. In one case only I met with a cyst in the upper cervical region which was emptied with a hypodermic needle, and although atrophic paralysis of the upper limbs did not undergo regression, the progress of the disease has been arrested and has so remained for the last eight years.

Spina Bifida Occulta.—I have operated twice for this condition, excising masses of fatty tissue which were pressing upon, and adherent to, the dura mater. One of these cases entirely recovered from his paralysis. In the other there was great improvement, but the result was vitiated by the fact that paralysis and club-foot had existed from birth to the tenth year, in spite of which the patient, who was getting steadily worse before the operation, was restored to a reasonably active life.

7. *Rhizotomy for the Relief of Pain.*

I have so recently had occasion to refer to laminectomy for this purpose that I merely mention the cases now with a view to completeness. Of six operations one was completely cured, three were very greatly relieved, one was unaltered, and in one the patient died from broncho-pneumonia. The last was the case of a very old man with extensive cardiac and chest troubles, whom I should not have considered a suitable subject for any serious surgical operation, but who had suffered so intensely from post-herpetic neuralgia that it was thought right, at whatever risk, to endeavour to give him relief.

8. *Exploration and Drainage.*

There remain to be mentioned 12 cases of somewhat miscellaneous nature, but to one or two of which I wish to make some reference. In seven cases exploratory operation revealed no definite or removable lesion, and very naturally no benefit was obtained in any of these. One of the seven is, however, included among the deaths from operation. The patient presented complete paralysis of the right arm, partial paralysis of the left, and paraplegia with vesical paralysis. The removal of three cervical laminæ and incision of the dura mater revealed no naked-eye changes, but after the operation the left arm also became completely paralysed, and death from failure

of respiration followed in two and a half days. Here again we have, I think, an example of the ill-effects of local œdema of the cord. In two of the miscellaneous group incision of the dura mater in the dorsal region was deliberately practised with a view to ascertaining whether any benefit could be obtained in locomotor ataxia, but although one of the patients was of opinion that he was improved I have no confidence that any real benefit was obtained.

There remain five cases which are not at the present time readily classified, but in which it appears probable that a considerable amount of benefit may hereafter be obtained. Under such names as "urinary paraplegia" and the like there have been descriptions for many years of a type of case in which paraplegia, or sometimes acute ascending paralysis, was associated with septic conditions of the urinary organs; and it is now well known that such sequelæ are liable to follow upon cystitis and septic affections of the kidneys. Moreover, it has been very clearly shown that direct infection, or at least direct intoxication, tends to spread from the urinary organs along the spinal nerve-roots, and then to set up secondary meningitis or even myelitis. From another point of view Horsley and others have described as chronic spinal meningitis cases in which they have discovered at the time of operation meningeal changes with or without some degeneration of the spinal cord and its nerve-roots, and they have obtained satisfactory results from laminectomy under these conditions. I would suggest, although my material is far too scanty for me to be able to work out any definite proof, that there is thus a strong probability that some cases of so-called transverse myelitis arise from an infection spreading inwards from the urinary or other organs, infecting the meninges, and thence proceeding to injure the spinal cord and its nerve-roots. If this is so, it is reasonable to hope that by opening and draining the meningeal space at the point of its infection we may arrest the noxious process and prevent or cure the ultimate paraplegia. In five cases I have operated with a view to so doing. In one the only naked-eye change discovered was a very profuse flow of cerebro-spinal fluid from the lower, instead of, as is usual, from the upper part of the incision into the dura mater. Of the ultimate progress of the case I have no note beyond the fact that six weeks later he was sent to a convalescent hospital.

In a second case, which was described as one of transverse myelitis, no naked-eye change was detected, and no improvement resulted; but here the operation was probably too late to be of real service. In a third case of steady and rapidly progressive paraplegia the exposed theca presented no pulsation, and on opening the dura we found on the arachnoid several small calcified patches. There was improvement, which was, however, far from satisfactory; and two months later several more arches were removed, the dura mater being very markedly thickened beneath them. From this time onwards there was steady and continuous improvement up to the time when the patient was lost sight of. In a fourth case my old notes are unfortunately so brief as to be hopelessly obscure. It appears clear, however, that paraplegia and anæsthesia, more marked upon the right side, followed within a month of an operation upon the right kidney. Laminectomy was performed, and the operation record merely gives us the bare entry "recovery," which I cannot safely take to place the patient in the category of the "cured." Lastly, I may mention one much more recent case already published about a year ago, in which there can, I think, be no doubt that renal infection was the cause of steadily progressive paraplegia, and in which rapid and complete recovery followed laminectomy and drainage.

CONCLUSION.

In concluding this account of my personal experiences in connexion with the surgery of the spinal cord, I am well aware of the difficulties under which I have laboured, and of the somewhat gloomy picture which I have been obliged to present to you; I have, however, thought it right not to select examples of success and hold them up as fair samples of a chequered experience, but to give as accurately as I could an account of the general results of medullary surgery in my own hands over a large number of years. The difficulties of so doing have been enormously increased by the fact that I have never had the advantage of working in a special hospital; that it is not always easy to appreciate the point of view from which operations were performed many years ago; that the cases are altogether by no means numerous, and that the records are still more scanty and incomplete. I can, however, assure you that the results have been honestly recorded; and although there is much that is depressing, and certain difficulties which seem unlikely ever to be overcome, there are still a reasonable number of cases in which life has been saved or prolonged, and in which much suffering has been averted by an operation, the intrinsic risks of which are not great, and which will, I hope, in the future come to rank as regards its safety with those exploratory laparotomies which have been the starting point of much of the brilliant abdominal surgery of the present day.

THE TREATMENT OF LUPUS BY THE DIATHERMY CONDENSER SPARK.[1]

BY A. E. MILNER, M.R.C.S. ENG.,

MAJOR R.A.M.C. (RET.); IN CHARGE OF THE RADIOLOGICAL AND ELECTRICAL DEPARTMENTS, DERBYSHIRE ROYAL INFIRMARY.

I FIRST tried the condenser spark early in 1919 on cases of multiple warts of the hands and isolated warts on the face. One of the cases, a nurse, had 46 warts on one hand; the treatment was very satisfactory, the warts were destroyed, leaving very little mark, and there has been no return of them. In this case ionisation and other treatments had failed. The success of the treatment for warts induced me to try it for a case of lupus erythematosus, of several years' duration, in which all the usual treatments had failed. This case was cured with very little scarring. While cases of lupus erythematosus were under treatment, cases of lupus vulgaris were also treated. Last year I read a paper before the Section of Dermatology of the Royal Society of Medicine on the treatment of erythematous lupus by this method, and showed some cases which had been cured—cases in which all the recognised forms of treatment had been tried and had failed. For erythematous lupus palliative treatment might first be tried, but in the light of the futility of ordinary treatment, I personally would not be prepared to waste much time on it. I have not previously published results of my treatment of lupus vulgaris, as I have not hitherto considered that sufficient time had elapsed; but it is now two years since some of these cases concluded treatment, and as they are still doing well I think they may fairly be considered cured.

Details of Cases Treated.[2]

The following are details of 12 cases. (D.O. = diathermy operations.)

CASE 1.—Lupus vulgaris simplex of face, 10 years' duration. Four D.O. Treatment concluded April, 1920. Time elapsed, 2 years and 7 months. Received a few X radiations after operations to soften scar.

CASE 2.—Lupus vulgaris simplex of cheek, 4 years' duration. Three D.O. Treatment concluded June, 1920. Time elapsed, 2 years and 6 months.

CASE 3.—Catarrhal lupus of neck, 5½ years' duration. One D.O. Treatment concluded July, 1920. Time elapsed, 2 years and 4 months. Received X radiations for several months before diathermy without cure.

CASE 4.—Lupus vulgaris simplex of nose and cheek, 3½ years' duration. Three D.O. on each patch. Treatment concluded May, 1920. Time elapsed, 2 years and 7 months. Received a few X radiations to soften scar after operations.

[1] A paper read on Dec. 6th, 1922, before the Midland Medical Society. [2] These patients were shown at the meeting.

CASE 5.—Lupus vulgaris simplex of face, 1 year's duration. Three D.O. Treatment concluded May, 1920. Time elapsed, 2 years and 6 months. Received a few X radiations after operations.

CASE 6.—Lupus vulgaris simplex of face, 2 years' duration. Four D.O. Treatment concluded May, 1920. Time elapsed, 2 years and 6 months.

CASE 7.—Catarrhal lupus of neck, 4 years' duration. Two D.O. Treatment concluded August, 1921. Time elapsed, 1 year and 3 months. Received some X radiations after operations.

CASE 8.—Lupus vulgaris simplex of nose, mucous membrane not affected, 2 years' duration. Three D.O. Treatment concluded July, 1920.

CASE 9.—Lupus vulgaris simplex of face, 5 years' duration. Three D.O. Treatment concluded September, 1921. Time elapsed, 1 year and 2 months. History: Vaccine treatment, 4 years ago—no beneficial result. Scraped three times, 3 years ago—recurred. Snowed 12 times—recurred.

CASE 10.—Lupus vulgaris simplex of face, 4 years' duration. Two D.O. Time elapsed since cure, 1 year and 1 month. Snowed six times and recurred.

CASE 11.—Fibrous lupus of hand, 1 year's duration. Three D.O. Treatment concluded October, 1920. Time elapsed, 2 years and 1 month.

CASE 12.—Lupus vulgaris simplex of cheeks, 7 years' duration right cheek, 1 year left cheek. Four D.O. right cheek, three D.O. left cheek. Treatment concluded August, 1922.

In lupus vulgaris the prospect of spontaneous cure is extremely remote, while progression and intractability are to be expected. As far as I can judge from results there is no question of trying any other form of treatment. I advise the diathermy condenser spark to destroy the disease, and the careful use of X radiations to soften the resulting scar tissue, which in most cases is surprisingly inconspicuous.

The following abstract of cases of lupus vulgaris treated includes hospital and private cases:—

Total number of cases of lupus vulgaris treated	52
Cured	24
Still under treatment	28
Cured by one operation	3
Cured by two operations	5
Total number of operations performed on cases cured	75
Average number of operations for each case cured	3·1
Average duration of treatment from first to last operation, including four cases which were under treatment over 12 months each, on account of re-infection from nasal mucous membrane (months)	5¼
Excluding these four cases the average time for the remaining cases works out at (months)	3·3
Time which has elapsed since cure was effected—	
In 13 cases (years) over	2
In 6 cases (year) over	1

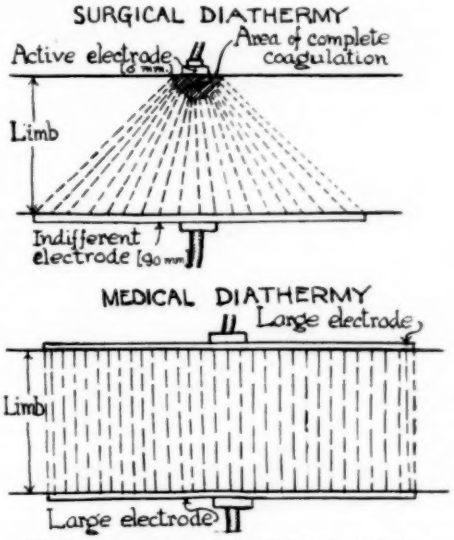
The Diathermy Method.

There may be some present who are not acquainted with diathermy, so I propose very briefly to outline the subject.

The diathermy apparatus is used in the production of the condenser spark, but the treatment is not strictly speaking diathermy, as I will later explain. The Greek derivation of the word diathermy sufficiently indicates its meaning: the heating is through and through, and no other heating used in medicine or surgery acts in a similar manner. The actual cautery acts by conduction, a fire heats by radiation. If the electrodes of a diathermy machine are placed before and behind a limb, the current heats the part of the limb between the electrodes; the electrodes themselves do not become heated, except to the degree of the tissues with which they are in contact. As heat from a cautery or fire is badly conducted by the tissues the advantage of diathermy heat will be appreciated at once. The diathermy current alternates very rapidly; so rapid are the alternations that tissues which respond to other currents, and contract, will not be excited by the diathermy current. Advantage can be taken of this fact to use very large currents. Instead of contraction, heat is generated. The number of alternations in the diathermy current is about one million per second; the heat generated may be of different degrees of intensity, and may be divided into medical and surgical diathermy.

Medical and Surgical Diathermy.

In medical diathermy the heat produced is insufficient to cause pain, and the concentration of heat is quite insufficient to cause coagulation of the tissues; it may be illustrated diagrammatically by the drawings I have made. In surgical diathermy, on the other hand, the active electrode being of much smaller size than the indifferent electrode, the heat is intensely concentrated in the tissues in the proximity of the active electrode, and coagulation takes place in the extent shown in the diagram.



Diagrammatic representation of action of surgical and medical diathermy.

Apparatus and Technique.

The apparatus required for the production of the diathermy condenser spark are a diathermy machine and a condenser couch. The condenser couch is made of wood; on the top four or more long, narrow metal plates are let in. When the patient lies on the table, two of the plates are under his back and two under his legs; over the metal plates are fixed layers of insulating material, usually vulcanite. One terminal of the diathermy machine is connected to the condenser couch; the other is connected with the patient's body by means of a large electrode, wrapped in a thick pad which has been soaked in a strong hot salt solution. The patient's body now forms part of a condenser, the insulating material between the patient's body and the plates of the couch being the di-electric.

When the diathermy current is turned on the patient's body, which is now the plate of a condenser, is rapidly charged alternately positively and negatively. If an electrode about the size of a darning needle, well earthed to a water pipe, be now brought to about one-sixteenth of an inch from the patient's body a succession of sparks will pass with great rapidity to earth. The intensity of the spark can be regulated by adjustments on the diathermy machine. The spark should be of moderate size; this is important as far as the resulting scar-tissue is concerned, for a too hot spark is followed with a thick scar, while a spark of moderate size produces a thin soft scar.

In all cases of lupus vulgaris a general anæsthetic has been necessary. As I have already informed you, the earthed electrode must be held one-sixteenth of an inch from the lupus patch, and, however heroic the patient may be, there is an involuntary movement, practically impossible to control, when the sparking commences, and the spark is also very painful. Before the condenser sparking comes into operation any of the usual anæsthetics may be used, but when sparking has once commenced no inflammable

anæsthetic such as ether should be given. If ether has been used before sparking commenced care should be taken that none has been spilt on the clothes or on the table; I have seen unpleasant consequences follow neglect of this precaution. The anæsthetist cannot touch the patient while sparking is in progress; if he does so he will receive a shock.

The patient, having been anæsthetised, the patch of lupus should first be circumscribed or mapped out by a line of sparks leaving about one-eighth of an inch of healthy tissue inside the circumscribed area. This having been done, the patch is sparked either by passing a line of sparks backwards and forwards in parallel lines, until the whole patch has been burnt, or by going round in concentric rings.

Effects on Tissue.

The result is a charred dry surface of yellowish colour. I usually dress the surface with a preparation of di-calamine cream; the ingredients are di-calamine and subnitrate of bismuth, of each 2 drachms, and liquid paraffin ½ oz., triturated until a paste of creamy consistence is formed. The spark destroys the altered tissue and apple-jelly nodules, the true seat of the disease, and the new blood-vessels and lymph-channels. With a magnifying glass it is possible to see the effect of spark on these blood-vessels of new formation; the vessels first expand from the formation of steam, then burst, and become charred, the granulomatous reticular tissue being dried up and destroyed.

The after-effect of sparking is an exudation of serum, and the subsequent formation of some crusts, which vary in extent in different cases. The crusts separate in from 14 to 21 days, and from 5 to 6 weeks the surface has generally healed. The result to be expected at this stage is an improved condition but not a cure. I have, however, had a few cases cured with one treatment.

When the surface of the patch has healed, a second condenser sparking should be performed. The resulting reaction and time occupied in resolution are much the same as before. The scar is no thicker after the second sparking than after the first. The sparking is continued until a cure is effected; on an average the operation is required 3·1 times. When a patch of lupus has been previously snowed, or treated with irritants or with the cautery, a thicker scar results. Another condition which affects the scar is the keloid tendency, of which I have had two cases.

The process of sparking which I have described has sometimes been called "fulguration," but as a spark like "lightning" is not what is required for lupus, the term "condenser spark," which the spark really is, would appear much more appropriate. Should the scar show a tendency to thicken, I give a few X radiations; it is the same process as that adopted for softening of scar-tissue after plastic operations of the face. I think most of us have seen the splendid results obtained from X radiations after shell-wounds and plastic operations of the face in the recent war.

The resulting scar is surprisingly good. One would expect to find a thick and unsightly scar, but in some of my cases it is hardly noticeable. The treatment of large patches requires admission to hospital; small patches can be done during attendances as out-patients, although I much prefer to have all cases in hospital for a few days at least. I have had under this treatment lupus vulgaris simplex, catarrhal lupus, fibroid lupus, and warty lupus.

Of these, lupus vulgaris simplex is the easiest to cure; the patches are usually smaller, there is less destruction of tissues, the apple-jelly nodules are near the surface, and there is an absence of pyococci.

I can state with assurance that the treatment has not failed to cure this form of lupus, and as this is the first stage of the catarrhal form, the importance of getting lupus cases under treatment early is apparent. The ideal patch for treatment is one about the size of half-a-crown; more extensive patches can be cured, but the treatment is tedious. The superior success of this treatment over that of scraping is, I think, due to the fact that the diathermy spark actually destroys the tubercle bacillus, whereas in scraping numerous tubercle bacilli must remain, smeared uninjured over the wound. I have found that in every case of lupus of the face that persists after the usual number of operations there is tuberculous affection of the mucous membrane either of the nose, gums, or lacrymal apparatus. The routine examination of these parts is as necessary in this treatment as in any other treatment for lupus; the proportion of cases in which these parts are affected is very large, and it is only to be expected that the operation wound will become re-infected if they are neglected. In butterfly lupus of the face, where the mucous membrane of the nose is also affected, it would be advisable to treat the nose first, and obtain as healthy a condition as is possible before commencing diathermy treatment of the face.

THE EFFECT OF RADIATION WITH THE MERCURY-VAPOUR QUARTZ LAMP

ON THE GROWTH OF RATS FED ON A DIET DEFICIENT IN VITAMIN A.

BY E. MARGARET HUME.

(From the Lister Institute, London, and The University Kinderklinik, Vienna.)

A Preliminary Report to the Medical Research Council.

Introduction.

THE comparable influence on rickets of cod-liver oil, sunlight, and the mercury-vapour quartz lamp is now a well-established fact, both in the case of infants and in the case of rats. The antirachitic factor in cod-liver oil has been much discussed, and its identity with the fat-soluble A factor is definitely denied by McCollum and his co-workers, who retain the name fat-soluble A or vitamin A for the factor which prevents xerophthalmia and promotes growth in rats receiving an otherwise complete diet. Further evidence with regard to this matter is badly wanted.

The present experiments were the outcome of work on rickets in infants, conducted in Vienna in conjunction with a number of other workers (Chick, Dalyell, Hume, Mackay, and Henderson Smith, 1922, and in preparation). The experiments were devised to ascertain whether any such interaction or mutual substitutability exists between vitamin A and light for the growth of rats, as has been demonstrated to exist between a vitamin factor and light for rickets. If such an interaction were found to exist the probability of the identity of the antirachitic factor with vitamin A would be heightened. It was also hoped to throw some light on the nature of the interaction, should it be found to exist.

McCollum and his co-workers observed in the course of their experiments on the prevention of rickets in rats by irradiation with the mercury-vapour quartz lamp that there was a slightly greater weight increase in the rayed animals (average weight at end of experiment 157 g.) than in the controls (average 140 g.), and that the former ate better, were more active, and in better general condition. Eckstein, at the meeting of the Deutsche Gesellschaft für Kinderheilkunde, Leipzig, September, 1922, narrated some observations on the influence of the mercury-vapour quartz lamp on the growth of young rats fed on a vitamin-free diet. He found that the irradiated rats were more checked in their development and died sooner than controls also fed on a vitamin-free diet. The details of the experiment are not yet published. In the course of the discussion on Eckstein's paper, the main points of the experiments about to be described were communicated on the writer's behalf by Dr. R. Wagner. Otherwise there do not appear to be any previous observations dealing with the subject.

The present paper comprises the following experiments:—

Group 1.—Systematic irradiation of rats fed on a diet deficient in vitamin A, irradiation and deficient diet commencing from the same date.

Group 2.—Systematic irradiation of rats, long fed on a diet deficient in vitamin A, which had begun to develop eye symptoms.

Group 3.—Systematic irradiation of rats which had been for shorter periods previously on a diet deficient in vitamin A.

Technique.

The diet used had the following composition: Heated caseinogen, 180 g.; maize starch, 520 g.; hardened cotton-seed oil, 150 g.; salt mixture, 50 g.; marmite (yeast extract), 60 g.; lemon-juice, 50 g.; water, 600 g. The salt mixture had the following composition: Sodium chloride, 51·9 g.; mag. sulph., 164·0 g.; sodium acid phosph., 104·1 g.; potassium phosph. 286·2 g.; calcium phosph., 162·0 g.; calc. lact., 390·0 g.; ferric citrate, 35·4 g.

The diet used in the case of group 3, and of three rats (Nos. 169, 170, 171) in group 2, was slightly modified to contain a little more casein and a little less starch. The food was fed in excess of the amount required by each animal and the residues were collected every second day. The rats were kept singly in eight-litre glass jars in a north room; they were bedded with sawdust and had a wooden house. Water was supplied ad libitum. The animals used, with the exception of Nos. 169, 170, and 171 (see table), and the six animals in group 3, belonged to the strain bred in the University Kinderklinik, Vienna, and were all albinos. The other animals were a Lister Institute strain, and were black and white or brown and white. The mercury-vapour quartz lamp used for the Vienna experiments was of the Hanau pattern; it was always allowed to run for at least five minutes before being used. No estimate was made of its deterioration since purchase, but this was probably great. The lamp used for the Lister Institute experiments was the same as that described by Goldblatt and Soames in the communication which follows. Rats subjected directly to the rays of the lamp were held in the hand, and the head and eyes were shielded either with the hand or with black paper. No untoward symptoms were ever observed, and the dose given was not sufficient to cause a skin reaction. The distance selected was throughout 80 cm. The dose first used was in some cases as much as 20 minutes daily, attained by several steps, but later 10 minutes every second day was used consistently. No attempt was made to ascertain a minimal dose.

The symptoms of vitamin-A deficiency observed were the same as those usually noted, conjunctivitis followed by xerophthalmia, failure to grow normally with ultimate decline in weight, loss of appetite, loss of general condition, and finally death. Rhinitis was also frequently seen. It was found possible to observe very early symptoms of xerophthalmia in the form of slight degrees of enophthalmos, and small amounts of a blood-tinged secretion in the inner corner of the eye. These first symptoms were found to progress to more and more severe degrees of enophthalmos and secretion, till conjunctivitis, œdema of the lids, dryness and opacity of the cornea, and corneal ulcers were finally seen.

Experimental Details.

Group 1. Systematic Irradiation of Rats on a Diet Deficient in Vitamin A.—Irradiation and deficient diet commence from the same date. Three rats (Nos. 151, 155, 158, Chart 1), belonging to three separate families of three were selected for the experiment, and three other rats, each belonging to one of the same three families, were used as controls (Nos. 153, 156, 159, Chart 1). Owing to the great difference in susceptibility to a vitamin-A deficiency now (Korenchevsky, 1921) known to exist between rats of different rearing, it is of the greatest importance that rats in experiments, such as these, should have controls from the same litters. At a weight between 50 and 60 g. both experimental rats and controls were placed upon the diet deficient in vitamin A. At the same time irradiation of the experimental rats was begun. In one case the two initial exposures were for five minutes, and in two cases only one preliminary exposure of five minutes was given. Subsequently raying took place for ten minutes on every second day. The three rayed rats grew at a rate well above the normal of Donaldson, which is, however, admittedly rather low, for a period varying from 35 to 50 days. Their curve of growth then began to flatten off, and soon showed actual decline. Two had rhinitis from the sixtieth day. All three became intensely excitable and nervous, a symptom first noted between the fiftieth and sixtieth days. The first symptoms of xerophthalmia, slight secretion, and slight enophthalmos appeared between the fiftieth and sixtieth days. More severe symptoms, corneal dryness, and opacity soon followed some ten days later. Actual ulcers occurred ultimately in two out of the three cases. General condition remained for some time superior to that usually seen in animals with such severe eye symptoms. One animal (No. 151) died on the seventy-seventh day without any symptoms other than those of severe vitamin-A deficiency. One (No. 158) was removed from the experiment on the sixty-seventh day with severe corneal ulcers, and the experiment was terminated in the case of the third (No. 155) on the seventy-seventh day, when also corneal ulcers were present. The three irradiated animals, therefore, showed a period of normal growth of from 35 to 50 days' duration, followed by the onset of typical symptoms of vitamin-A deficiency, to which was added a condition of great nervous excitability not usually observed.

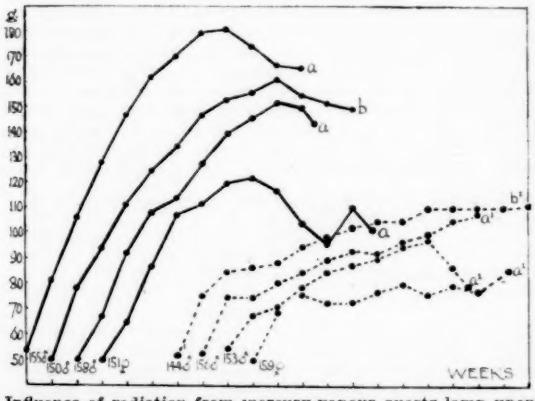
The controls (Nos. 153, 156, 159, Chart 1) grew normally for a period of from seven to ten days, then their curve of growth flattened off, showing continuous slight growth, far below the normal, for a period, in the case of two, of 77 days, when the experiment was terminated. The third animal refused to eat the synthetic diet after the sixty-sixth day and lost weight severely; cod-liver oil was added to the diet, but this was also refused. Recovery took place on bread and milk, however, and these facts, coupled with the complete lack of symptoms, suggested that the animal's decline was not directly due to lack of vitamin A, but to a simple refusal to eat anything

TABLE ILLUSTRATING TREATMENT WITH THE MERCURY-VAPOUR QUARTZ LAMP OF RATS PREVIOUSLY ON A DIET DEFICIENT IN VITAMIN A FOR VARYING PERIODS AND TIME.

No. of rat.	No. of days on def. diet before raying starts.	Presence of eye symptoms.		Exposure to rays at 80 cm. in minutes.	Duration of treatment in days.	Weight g. at commencement (1) and end (2) of raying.		Remarks.
		Before raying.	After raying.			(1)	(2)	
88	144	+	No improvement.	20 daily—through glass. 10 every 2nd day—no glass.	14 7 21	125	92	Died.
110	158	+	Worse.	10 every 2nd day.	24	106	104	—
131	45	+	Worse with marked temp. improvement.	20–30 daily. 10 every 2nd day.	28 13 41	104	100	Weight rose to 122 g. on 21st day.
132	115	+	Worse.	10 every 2nd day.	19	119	110	—
133	115	+	No improvement.	,, ,,	17	126	109	—
169	91	+	Worse.	,, ,,	6	120	110	Very ill.
170	91	+	,,	,, ,,	19	129	110	Died.
171	91	Very slight.	,,	,, ,,	24	129	107	,,

at all of the synthetic diet. The general condition of the three controls continued to be very fair, although they remained so small. One animal was rather excessively nervous, and one had slight rhinitis. As regards the eyes, no animal had by the seventy-seventh day showed more than slight symptoms of enophthalmos. The rayed animals therefore grew far in excess of the unrayed animals, normal growth being maintained for about five times as long. After the prolonged period of normal growth, however, the rayed animals developed the typical symptoms of vitamin-A deficiency with greater severity and greater rapidity than did the control animals; this is particularly true of the symptoms of xerophthalmia, the rayed rats already showed corneal alterations

CHART 1.



Influence of radiation from mercury-vapour quartz lamp upon growth of rats upon a diet deficient in vitamin A. *a a*, Weight curves of rats 151, 155, 158; irradiation 10 minutes every second day, beginning simultaneously with deficient diet. *b*, Weight curve of rat 150; irradiation from sixth day of deficient diet, 20 minutes every second day until the thirtieth day, thereafter 10 minutes every second day. a^1 a^1, b^1, weight curves of unradiated controls (a^1), 153, 156, 159 for (*a*); (b^1) 144 for (*b*).

(in two cases ulceration) when the controls only showed early signs of enophthalmos. Conclusions drawn from the date of onset of xerophthalmia in so small a series of rats would not usually be accepted, but the difference in this case is so great and the uniformity so complete that it does seem possible to draw a conclusion.

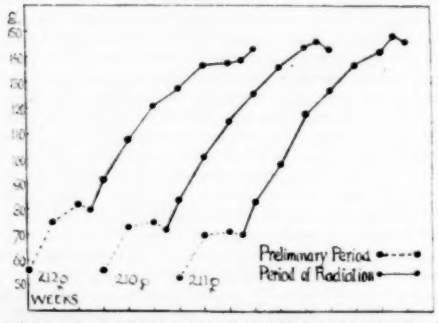
A fourth rayed animal (Chart 1, No. 150) and its control (Chart 1, No. 144) have not been included in the foregoing series owing to the different dose of irradiation given. Irradiation did not begin until the sixth day of deficient diet, when a dose of 20 minutes every second day was quickly reached by steps and continued till the thirtieth day, when the dose was reduced to ten minutes every second day. The history does not, however, materially differ; normal growth continued in the rayed animal till about the fiftieth day. About the thirtieth day slight eye symptoms appeared, but retrogressed completely, and did not reappear till about the seventieth day, from which time they became progressively more severe. The experiment was terminated on the ninety-seventh day, when the eyes showed deep enophthalmos and much secretion with frequently adherent lids but no ulceration of the cornea. Rhinitis was present. The control, No. 144, Chart 1 (a brother of 150), grew normally for about 14 days, showed slight enophthalmos on the eighty-fourth day and dryness of the cornea on the one-hundredth day, when the experiment was terminated; on that date the animal had an attack of acute tetany, from which it recovered; its general condition was fair. The result with these two animals thus falls into line with the results already detailed.

Group 2. Systematic Irradiation of Rats long Fed on a Diet Deficient in Vitamin A, and beginning to Develop Eye Symptoms.—The animals used in this experiment agreed in having been for long periods of time on the same vitamin-A deficient diet as was used for the experiments in Group 1, and in having been long stationary in growth. Two (Nos. 88 and 110 in table) had, however, received for an intermediate part of the period a small ration of milk, insufficient to induce more than slight growth; they had been without this ration, one for 35 and one for 64 days, before irradiation began. The table gives the particulars of eight such rats, most of which were irradiated for ten minutes every second day, but of which one (No. 131) was irradiated for 20 to 30 minutes daily for 28 days, and another (No. 88) for 20 minutes daily, but through glass, for 14 days. It is clear from the table that when irradiation was thus applied for periods varying from six to 24 days to rats which had been on a deficient diet already for from 91 to 158 days, there was no resumption of growth, but rather loss of weight. Symptoms of xerophthalmia failed to improve or got worse, and death occurred in three cases. In one case (No. 131) there was a temporary resumption of growth (18 g. in 22 days) and retrogression of eye symptoms, but the improvement was only maintained for 21 days, although irradiation was continued for, in all, 41 days. A similar temporary improvement is sometimes observed in controls, but it is noteworthy that this animal had been for a shorter period than most (only 45 days) on a deficient diet before irradiation began, and the observations made on the next group make it probable that it is with that fact that the temporary recovery is to be correlated.

It would, therefore, appear that rats which have been for long (90 days and over) on a diet deficient in vitamin A cannot be recovered, either as regards growth or xerophthalmia, by irradiation with the mercury-vapour quartz lamp.

Group 3. Systematic Irradiation of Rats Fed for Varying Shorter Periods on a Diet Deficient in Vitamin A.—The procedure was the same as in the foregoing groups, except that irradiation was applied for ten minutes daily instead of every other day, a fact which is not thought in any way to damage the comparison. The eyes were not shaded from the lamp, hence no conclusions are drawn with regard to xerophthalmia. Chart 2 shows the curves of three rats with which

CHART 2.



Weight curves of rats upon diets deficient in vitamin A. Irradiation 10 minutes daily, beginning after 17 days on deficient diet.

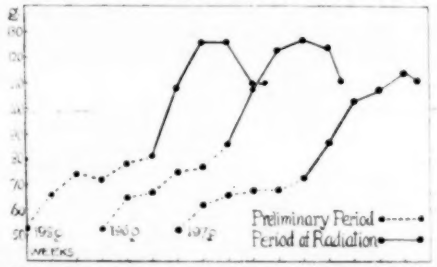
irradiation was begun on the seventeenth day of deficient diet, when normal growth had already ceased for about ten days. The weight curve at once again lifted to the normal rate and growth was still continuing, though not quite normally, on the fifty-sixth day, when all three rats had a weight of about 140 g. Chart 3 shows the curves of three rats in which irradiation was begun on the thirty-fifth day of deficient diet. The response was the same as in the preceding experiment, but it was not maintained for so long, about 14 days as against about 28 days, and the maximum weight attained was not as great, about 125 g. as against 140 g. and over.

Irradiation was not attempted at periods intermediate between 35 days and the times described under group 2, but it can hardly be doubted that the duration and extent of the response to irradiation must be roughly inversely proportional to the length of the previous period on vitamin-A-free diet, all other conditions being equal.

Summary and Conclusions.

From the foregoing experiments it is apparent that irradiation with the mercury-vapour quartz lamp can prolong normal growth on a diet almost free, or free, from vitamin A. Whereas without irradiation growth ceased to be normal after about seven to ten days, with irradiation it continued to be normal for from 35 to 50 days. Symptoms of vitamin-A deficiency then began to appear and symptoms of xerophthalmia set in earlier than in control animals. Attempts to revive growth and to cure xerophthalmia by irradiation of animals which had long (over 90 days) been on a deficient diet failed completely; the animals seemed, if possible, to go to pieces more rapidly. Irradiation of rats which had been for shorter periods (17 and 35 days) on a vitamin-A deficient diet produced a growth response which appeared to be inversely proportional, in its duration and extent, to the length of the previous period of deficient diet.

CHART 3.



Weight curves of rats upon diets deficient in vitamin A. Irradiation 10 minutes daily, beginning after 35 days on deficient diet.

The general conclusion drawn is, that there is an interaction between vitamin A and light for the growth of rats, but that the action of the light is not to produce a photosynthesis of the vitamin. It would appear as if on cessation from normal diet there is a larger or smaller store of vitamin in the rat's body which is for a few days so available that normal growth continues. Very soon, however, it ceases to be thus available; growth almost, but not quite, ceases, and the vitamin store serves the animal for maintenance for a long period of many weeks. At length the store is quite used up and bankruptcy can no longer be staved off, the animal entirely ceases to grow, usually develops severe xerophthalmia, loses weight, and dies. The early cessation of normal growth, followed by a long period of maintenance, might almost be regarded as a defence mechanism, which enables the rat by minimum expenditure of vitamin A to tide over a period of vitamin-A famine, such as might easily be a danger in the normal life of the rat.

When irradiation is applied it would seem as if, either the low level of vitamin-A metabolism is rendered sufficient—i.e., the vitamin is economised—or else the vitamin stores are forced to yield up vitamin at a rate sufficient to produce normal growth until the supplies are wholly exhausted. This effect can apparently be produced at any time before the end of the period of slow growth, and the amount of normal growth produced as a result would appear to be roughly inversely proportional to the length of time any individual rat has previously been on the vitamin A deficient diet. Ultimately, when presumably all the stores are exhausted, no normal growth can be evoked by irradiation. Hence it is clear that the light can neither create nor be substituted for the vitamin; it appears to act only as an economiser or activator when it is already present. Whether the interplay thus shown to exist between vitamin A and light for the growth of rats is wholly similar to that shown to exist between a vitamin factor and light for rickets it is at present not possible to say. Examination of the results obtained by McCollum and his co-workers in preventing rickets in rats with sunlight and with ultra-violet light shows that the animals were on the deficient diet only 62 to 67 days and 64 days respectively, and the diets are only characterised as below the optimum in vitamin A. The experiments did not therefore last long enough to determine whether the protection was permanent or not, and the supply of vitamin A was certainly not nil. The same applies to the similar experiments of Hess, Unger, and Pappenheimer; the diet was lower in vitamin A, but the experiment only lasted 30 to 40 days.

The existing experimental evidence does not, therefore, exclude the possibility that the interplay in growth and rickets is the same, and the very existence of an interplay in both cases heightens the possibility that the two vitamin factors may be identical or nearly allied.

In conclusion, my thanks are due, in particular, to Prof. Pirquet, Director of the University Kinderklinik, Vienna, for the most generous hospitality; to Dr. R. Wagner for much kind assistance; to Schwester Renate Arlt, Miss H. Henderson Smith, and Frau Dr. Helene Jokl for help in feeding the animals; to Dr. S. S. Zilva for the preparation, and to the Foreign Office and the British Legation in Vienna for the transport of the purified foodstuffs, without which the work would have been impossible.

Bibliography.

1. Chick, H., Dalyell, E. J., Hume, M., Mackay, H. M. M., and Henderson Smith: THE LANCET, 1922, ii., 7.
2. Hess, A. F., and Unger, L. J.: Jour. Amer. Med. Assoc., 1921, lxxvii, 39.
3. Hess and Unger and Pappenheimer, A. W.: Jour. Biol. Chem., 1922, l., 77.
4. Huldschinsky, K.: Deutsche med. Wochenschr., 1919, xlv., 712.
5. Korenchevsky, V.: Brit. Med. Jour., 1921, ii., 754.
6. McCollum, E. V., and others: Studies on Experimental Rickets; (2) Jour. Biol. Chem., 1921, xlv., 343; (11) Proc. Soc. Exp. Biol. and Med., 1921, xix., 43; (12) Jour. Biol. Chem., 1922, l., 5; (14) Jour. Amer. Med. Assoc., 1922, lxxviii., 159; (19) Johns Hopkins Bull., 1922, xxxiii., 125; (21) Jour. Biol. Chem., 1922, liii., 293.
7. Park, E. A., and Howland, J.: Johns Hopkins Bull., 1921, xxxii., 340.

THE EFFECT OF RADIATION WITH THE MERCURY-VAPOUR QUARTZ LAMP

ON THE GROWTH OF RATS FED ON A DIET DEFICIENT IN THE FAT-SOLUBLE GROWTH-PROMOTING FACTOR.

BY H. GOLDBLATT, M.D. MCGILL UNIVERSITY, BEIT MEMORIAL FELLOW FOR MEDICAL RESEARCH;

AND

K. M. SOAMES, M.SC.

(*From the Department of Experimental Pathology, Lister Institute.*)

MANY investigators, chief among them Hess,[1 2 3] Shipley,[4] Park,[5] and their respective collaborators, have reported studies in the prevention and cure of experimental rickets in rats by means of the mercury-vapour quartz lamp and other forms of light rich in ultra-violet rays. Some of the authors [5 b] have mentioned an increase in the weight of these radiated animals much greater than that of the non-radiated control rats on the same rickets-producing diet. In the diet employed by Powers[5 b] and his collaborators, who make particular mention of this gain in weight, there is present, according to these authors, a moderate, though inadequate, amount of vitamin A.

As part of an investigation into the mode of action of various forms of light in the prevention and cure of experimental rickets in rats, it was found necessary to study the effect of the radiation upon growth of young rats fed on a purified diet as free as possible

from detectable traces of vitamin A, but one adequate in all other respects when a sufficiency of this organic factor is present.

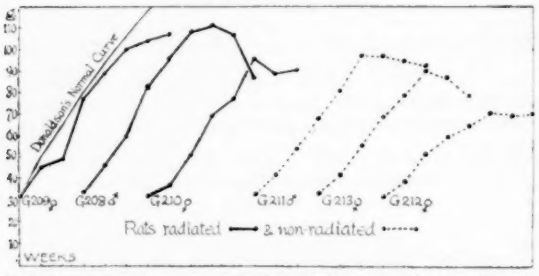
For this purpose the following diet was used: Purified casein (heated and oxidised), 20 g.; starch, 50 g.; cotton-seed oil (hardened), 15 g.; salt mixture (McCollum and Davis, No. 165), 5 g.; marmite, 5 c.c.; lemon-juice (decitrated), 5 c.c.; distilled water, 50 c.c.

If the animal's store of fat-soluble vitamin A is not very great when special feeding with the above diet is begun, gain in weight occurs at a moderate rate for from four to six weeks; it then ceases rather abruptly, and the weight is either maintained for a while or declines. The length of time during which weight is maintained at one level, or the rapidity with which decline occurs, varies with the individual, though members of the same family tend to act in a similar manner. In all this work it is therefore advisable if possible to use for purposes of comparison rats from the same litter.

Series 1.

Rats G 208, G 209, and G 210, when weaned at the age of 25 days, were placed on the above-mentioned deficient diet and subjected daily to radiations from a mercury-vapour quartz lamp. The lamp used was a Y4 pistolette quartz lamp made by the Hewittic Electric Company, using a current of 3·5 ampères and emitting rays whose shortest wave length was 230 μμ. The photograph of its spectrum showed particularly dark bands at 258, 312, and 365 μμ. This lamp when employed for 15 minutes daily at a distance of 60 cm. was known to prevent the development of rickets in rats receiving a rickets-producing diet. The minimum exposure from the above lamp required for this purpose has not yet been determined. Control rats G 211, G 212, and G 213, from the same litter, were placed on the same diet as the above subjects, but were not radiated. Both groups were kept in a very dark room, the first group being removed daily to another room only for the short period during which they were radiated. The first exposures to the light were for five minutes at a distance of 60 cm. from the lamp, and the length of the exposure was increased by five minutes every two days until 20 minutes was reached, at which level radiations were continued throughout the experimental period, the distance from the lamp always remaining the same. Chart 1 illustrates the result of this experiment. The radiated animals gained weight more rapidly, and their growth curve reached a higher level than that of the controls. The radiated rats also continued to gain in weight for a longer period than the others, but they did finally cease to grow. Even towards the end of the experimental period, when they had already ceased to gain in weight, the radiated animals were in better condition than the controls They were at all times much more active and alert, and their general appearance was much better than that of the non-radiated rats. This was noted in the three series.

CHART 1.

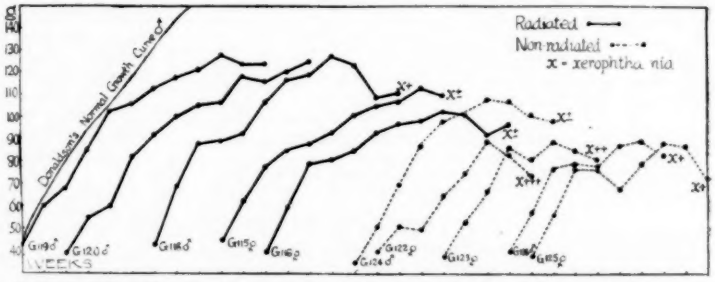


Series 1.—Growth curves of radiated and non-radiated rats, both groups on a diet very deficient in fat-soluble vitamin A.

Series 2.

Another group of rats, G 115, G 116, G 118, G 119, and G 120, at the age of 28 days were also put on the deficient diet, and radiations with the mercury-vapour quartz lamp were begun immediately. In this case the first exposure was for two minutes at 90 cm.; subsequently the time was increased, and the distance shortened by rapid stages until an exposure of 30 minutes at 60 cm. was reached, at which level it was maintained to the end of the experimental period. The control rats G 122, G 123, G 124, G 125, and G 126 received the deficient diet but were not radiated. Both groups were kept in the same dark room as the rats of Series 1. In the rats of Series 2 the contrast between the two groups was quite striking. This is illustrated in Chart 2. Here again, as in Series 1, the radiated animals grew more quickly, reached a greater weight, and their growth ceased much later than that of the controls. In every instance the radiated rats continued to gain weight for at least three weeks longer than the controls, but growth finally ceased quite definitely in the radiated animals as well as in the controls. At the end of the experimental period, control rat G 122 had severe, G 123 moderate, G 125 and G 126 slight, and G 124 very slight xerophthalmia, while, of the radiated, G 115 and G 116 had very slight xerophthalmia of one eye and G 118 had the condition to a slight degree in both. A special apparatus was devised and used at first to screen the eyes of the animals during the exposure to the light, but this precaution was abandoned later when it was found by experimentation with other rats that, with the lamp employed, a daily exposure of even four hours caused no sign of conjunctivitis.

CHART 2.



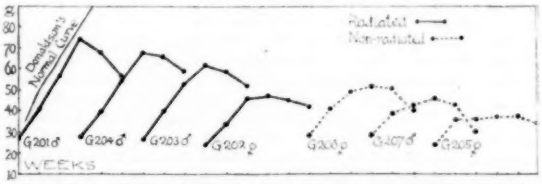
Series 2.—Growth curves of radiated rats and unradiated control rats, both groups on the same diet (very deficient in fat-soluble vitamin A).

Series 3.

The rats of this series are of particular interest because their mother was on the diet deficient in fat-soluble vitamin A during the latter part of pregnancy and the entire period of lactation. This litter therefore had a congenital deficiency of vitamin A and cannot have had a great store of this growth-promoting factor in them when weaned. That this was the case can be seen by comparing their growth curves with those of Series 1 and 2 (see Chart 3). When weaned at the age of 22 days, rats G 201, G 202, G 203, and G 204 were placed on the deficient diet and radiations were begun, while G 205, G 206, and G 207 were used as the non-radiated controls. Despite the poor state in which all the rats of this series were at the beginning of the experiment, yet here again the same differences were noted between the radiated and the controls, as in the case of Series 1 and 2. In the fifth week after special feeding was begun the controls developed acute entero-colitis and died. Two of the radiated rats also developed slight diarrhœa. Since the controls had died, the radiated animals were killed.

The average maximum gain in weight of the radiated rats in Series 1 and 2 was 75 g., while that of the non-radiated controls was 54 g. The average maximum weight of the radiated in those two series was 113 g. and that of the controls was 90 g. In Series 3 the difference between radiated and controls was even more striking, though on a lower level.

CHART 3.



Series 3.—Comparison of the growth curves of radiated and non-radiated rats. The mother of this litter was on the diet deficient in vitamin A. during the latter part of pregnancy and the whole period of lactation.

The average maximum gain was 48 g. as compared with 18 g. for the controls and the average maximum weight reached was 83 g. for the radiated as opposed to 46 g. for the controls (see Table I.). A comparison

TABLE I.—A comparison between the maximum weights (in grammes), maximum gain in weight, and length of growth of radiated and non-radiated rats on diet deficient in fat-soluble A.

Radiated.					Non-radiated controls.				
No.	Sex.	Max. wt. in g.	Max. gain in g.	Continued growth in weeks.	No.	Sex.	Max. wt. in g.	Max. gain in g.	Continued growth in weeks.
Series 1.									
G 208	M.	109	75	6	G 211	M.	98	65	5
G 209	F.	107	75	7	G 212	F.	71	39	5
G 210	F.	96	64	5	G 213	F.	93	59	5
Series 2.									
G 115	F.	112	67	9	G 122	F.	89	49	5
G 116	F.	103	63	8	G 125	F.	87	49	6
G 118	M.	128	84	8	G 126	M.	88	48	6
G 120	M.	125	86	11	G 123	F.	89	51	5
G 119	M.	128	85	9	G 124	M.	108	73	6
Series 3.									
G 201	M.	74	46	3	G 205	F.	38	14	1
G 202	F.	47	23	3	G 206	F.	53	24	3
G 203	M.	62	35	3	G 207	M.	46	17	3
G 204	M.	68	40	3					

between the average amount eaten from week to week by the radiated and non-radiated rats of Series 1, 2, and 3 shows a definite difference between the two groups, the radiated eating on an average 20 per cent. more than the corresponding controls (see Table II.).

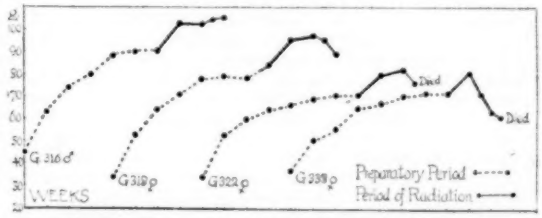
TABLE II.—Average daily amount (in grammes) eaten by radiated rats and non-radiated controls on the same deficient diet.

Week ..	1st	2nd	3rd	4th	5th	6th	7th	8th
Series 1.								
Radiated ..	7·3	10·1	16·1	20·2	18·1	12·4	13·0	9·6
Controls ..	7·3	10·3	12·8	12·6	13·2	10·4	10·8	—
Series 2.								
Radiated ..	10·4	11·7	10·6	11·9	12·5	14·4	11·6	14·1
Controls ..	9·6	10·2	9·7	10·9	12·3	10·9	10·3	11·2
Series 3.								
Radiated ..	7·4	10·4	11·8	12·5	8·5	—	—	—
Controls ..	7·0	8·9	8·6	8·3	6·6	—	—	—

Effect of Radiation with the Mercury-Vapour Quartz Lamp on Rats that have Ceased Growing on a Diet Very Deficient in Fat-soluble Vitamin A.

A number of rats was placed on the diet deficient in fat-soluble vitamin A, and when growth had ceased they were radiated by means of the quartz lamp for the same time and at the same distance as in Series 1 and 3. With rats G 316, G 318, G 322, and G 338, in which cases radiation was begun after the weight had been at a standstill for from *one to two weeks*, resumption of growth was prompt and definite, but this gain lasted only for a comparatively short

CHART 4.

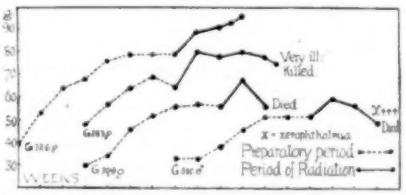


Growth curves of rats radiated after having been on the deficient diet for from 42 to 49 days, and gain in weight had ceased for from one to two weeks. Resumption of growth for a short period. Preparatory period on a diet deficient in fat-soluble vitamin A.

period, and then growth again ceased rather abruptly (see Chart 4).

In the case of rats G 283, G 309, G 310, and G 326 (see Chart 5), whose growth had definitely ceased for *two weeks*, a decided but very short-lived increase in weight also occurred after radiations were begun, but growth then ceased again, and the weight either remained stationary or declined steadily until

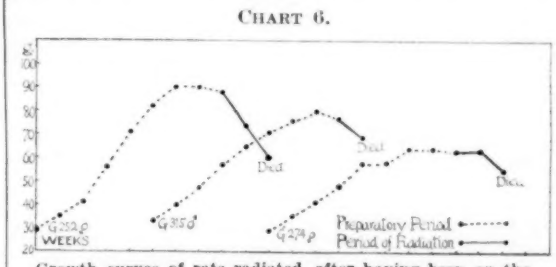
CHART 5.



Growth curves of rats after having been on the deficient diet for from 42 to 49 days, and gain in weight had ceased for two weeks. Temporary resumption of growth.

death occurred, as is usual after a period on this very deficient diet. Several of the animals developed xerophthalmia during the period of radiation, and in those in which xerophthalmia was present to a slight degree when radiations were begun the condition became definitely aggravated during the subsequent few weeks (see Chart 5). Rats G 274, G 252, and G 315, radiated from the time their weight had been stationary for two weeks, showed no resumption of growth but declined rapidly and died (see Chart 6).

CHART 6.



Growth curves of rats radiated after having been on the deficient diet for 56 days, and gain in weight had ceased for two weeks. No resumption of growth.

Radiation of rats after their growth has ceased for *three weeks* or longer is now being carried out. Present indications are that no resumption of growth results, but definite facts will have to await a later publication.

Summary and Conclusions.

This is in the nature of a preliminary communication on the subject. Many more rats than are described in this paper are being studied in the same way and in another connexion, but the work on them is still incomplete, so that the results are to be published in a later report. It is shown that young rats, if radiated with the mercury-vapour quartz lamp from the time they are put on a diet very deficient in fat-soluble vitamin A grow more rapidly, reach a higher maximum weight, continue to grow for a longer period, and, finally, show a general condition better than that of control rats from the same litter receiving the same diet but no radiation. Similar differences between radiated animals and controls were observed even in the case of a litter of rats (Series 3) brought up by a mother who was fed on the same deficient diet during the latter part of pregnancy and the entire period of lactation.

During the first four or five weeks, despite the deficient diet; the radiated animals of Series 1 and 2 grew at practically the normal rate for rats of that age, but during the next few weeks the rate of growth slowed up definitely, and finally gain in weight ceased altogether. In some of the radiated animals slight xerophthalmia developed. Rats radiated when growth has ceased for only a short period, at which time it is conceivable that the entire store of fat-soluble vitamin A is not completely exhausted, resume growth for a short period, then cease gaining weight, and the subsequent history is that of non-radiated rats on a diet very deficient in vitamin A—viz., decline in weight, and finally death with or without the previous development of xerophthalmia or some intercurrent infection. Some rats whose growth has definitely ceased for two weeks or longer do not resume growth as a result of radiation, and their subsequent history is unmodified. In some instances decline in weight seems to be accentuated and death hastened by the treatment.

It is apparent from the above findings that radiation with the mercury-vapour quartz lamp cannot act as a substitute for the fat-soluble growth-promoting factor which is a necessary element of the diet. Synthesis of this growth-promoting factor does not occur in rats on a diet deficient in vitamin A as a result of their exposure to radiations from the mercury-vapour quartz lamp. But in some way the above form of light leads to an economy of the action of the vitamin A already stored in an animal at the time it is placed on the deficient diet. If the store of vitamin A is not completely exhausted at the time radiations are begun, apparently an improvement in appetite and increase of food consumption is generally noted.

The above findings agree in most of the essential details with those of Miss E. Margaret Hume reported by her in another communication in this issue. The greater difference in growth between the irradiated rats and the controls in her group 1 than in the corresponding groups (Series 1 and 2) reported here can be explained by the fact that in her experiments the animals were older and heavier, and therefore probably had a larger reserve of fat-soluble vitamin A at the beginning of the experimental period.

We are glad to acknowledge our sincere thanks to Prof. C. J. Martin for encouragement and advice throughout the conduct of these experiments.

Bibliography.

1. Hess, A. F., Unger, L. J., and Pappenheimer, A. W.: (*a*) Proc. Soc. Exp. Biol., and Med., 1921, xix., 8; (*b*) Proc. Soc. Exp. Biol. and Med., 1922, xix., 238; (*c*) Jour. Biol. Chem., 1922, l., 76.; (*d*) Jour. Exp. Med., 1922, xxxvi., 427.
2. Hess, A. F.: (*a*) Jour. Biol. Chem., 1922, l., 44; (*b*) Jour. Amer. Med. Assoc., 1922, lxxviii., 1177.
3. Hess, A. F., and Unger, L. J.: Jour. Amer. Med. Assoc., 1922, lxxviii., 1596.
4. Shipley, P. G., Park, E. A., Powers, G. F., McCollum, E. V., and Simmonds, Nina: Proc. Soc. Exp. Biol. and Med., 1921, xix., 43.
5. Powers, G. F., Park, E. A., Shipley, P. G., McCollum, E. V., Simmonds, Nina: (*a*) Jour. Amer. Med. Assoc., 1922, lxxviii., 159; (*b*) Bull. Johns Hopkins Hosp., 1922, xxxiii., No. 374, p. 125.

DRUGS IN THE TREATMENT OF DIABETES MELLITUS.

BY P. J. CAMMIDGE, M.D. LOND.,
J. A. CAIRNS FORSYTH, F.R.C.S. ENG.,
AND
H. A. H. HOWARD, B.SC. LOND.

THE treatment of diabetes mellitus by drugs has fallen largely into abeyance during recent years owing to the generally satisfactory results obtained without their aid by modern methods of regulating the diet. This is as it should be, for a diet carefully worked out to suit the tolerance of each individual patient, and arranged according to the particular form of diabetes from which he is suffering, is no doubt a primary essential for successful control of the disease, but it is questionable whether the pendulum has not swung too far, and whether the lives of many diabetics might not be made more tolerable, and their existence prolonged, by the use of suitable drugs as an ancillary to the dietetic treatment. The chief dangers arising from the employment of drugs in the treatment of diabetes are that they often come to be regarded as *the* treatment, with consequent neglect of the necessary dietetic precautions, and that they are generally prescribed empirically without regard to the type of case to which they are being applied. These difficulties can be overcome, and should not be allowed to prevent us giving to our patients any help which a suitable exhibition of drugs may offer, especially where it is only found possible to keep the disease in check with a bare maintenance diet, or less. It was partly in consequence of the occurrence of several successive cases of the latter type in the practice of one of us that the investigations here described were set on foot.

An Illustrative Case Treated with Atropine.

One of the cases referred to, which may be cited as an example, was a man, aged 45, in whose urine sugar had been discovered in January, 1918. In March of that year, in February, 1919, and again in July he underwent a course of treatment in a nursing home in the north, and on each occasion was discharged with a more restricted diet. On his last visit his friends were informed that his case was hopeless. When he consulted one of us, in February, 1920, he passed 190 g. of sugar on a test diet containing 80 g. of carbohydrate, 90 g. of protein, and 90 g. of fat, and his blood-sugar, three hours after breakfast, stood at 0·62 per cent. There was also considerable acidosis, the urine containing 3·5 g. of oxybutyric acid, and 1·35 g. of acetone. By careful treatment the acidosis was controlled, all acetone and oxybutyric acid disappearing from the urine, and after three fasts of two days each, with intervals of light diet, the urine became sugar-free, while the blood-sugar dropped to 0·15 per cent. All attempts to work out a satisfactory maintenance diet were unsuccessful, however, the blood-sugar rising to 0·20 per cent. or more, and sugar reappearing in the urine when only low-value vegetables, with a total carbohydrate content of about 15 g., 50 g. of protein, and 10 to 15 g. of fat were allowed. The prognosis, therefore, did in fact appear to be hopeless, and there seemed to be only a choice between a slow death from inanition or a more rapid end from diabetic coma. On thinking the case over another alternative suggested itself: a serial investigation of the blood having shown that the "difference value" followed a typical "pancreatic" curve, corresponding to that found in a partially depancreatised dog, it occurred to us that if the still functioning pancreatic remnant could be conserved for the purpose of internal carbohydrate metabolism alone by preventing it from forming its external secretion, it might be possible to increase the diet to a considerable extent, and even attain a maintenance diet, without overstraining it. Bearing

in mind the depressing effect of atropine upon all the secretions of the body, it seemed possible that this end might be attained by the use of that drug. After a number of preliminary experiments upon normal human beings, and animals, and upon partially depancreatised dogs, with encouraging results to which we shall refer subsequently, the patient was given, at first, tincture of belladonna, and later atropine in pill form, three-quarters to one hour before each meal. It was then found that he was able to take as much as 80 g. of carbohydrate, 90 g. of protein, and 50 g. of fat without glycosuria, and with a blood-sugar ranging from 0·070 per cent. fasting, to a maximum of 0·140 per cent. three hours after a meal. It had been originally intended to give a preparation of pancreas with meals, but as nutrition was well maintained without it, and experience showed that hyperglycæmia and glycosuria were more readily provoked when preparations of this character were being used, the idea was abandoned. The patient has continued a similar line of treatment ever since, and is not only alive but is able to follow his ordinary occupation, a result which seemed quite impossible three years ago. He appears to have experienced no serious ill-effects from the continued use of the atropine; although he has been put through a searching series of tests at intervals of about three months, there has been no apparent diminution in his food tolerance.

Method of Investigation of Influence of Drugs.

By means of the modern micro-methods of analysis it is now possible to determine with much greater certainty the influence of drugs upon the sugar content of the blood, and therefore on carbohydrate metabolism, than was formerly the case when reliance had to be placed solely upon the results of examination of the urine, for we can now watch from hour to hour the effects of the administration of a drug and determine its influence over the changes induced by foods of various kinds in both normal and pathological conditions. The method we have adopted has been to ascertain, first, the percentage of sugar in the blood of the subject of the experiment in the fasting condition by a modification of the Folin and Wu process,[1] then to administer a test-meal of known composition and estimate the sugar content of the blood at hourly intervals for several hours. Having determined in this way the normal fasting value and the response of the patient to that particular meal, the experiments have been repeated under exactly the same conditions, except that the drug under investigation has been given with the food, or at a prescribed interval previously.

Atropine.—Taking a healthy human subject, with a fasting value of 0·080 per cent. of sugar, it was found that after a test breakfast the sugar content of the blood rose in the manner shown in the table (Table I., A) to a maximum value of 0·152 per cent. three hours after the meal, and then slowly fell again until the fasting level was reached at the fifth hour. On the next day the subject was found to have the same percentage of sugar in his blood fasting (0·080 per cent.). He was then given one-hundredth of a grain of atropine sulphate, in pill form, with a draught of water. Three-quarters of an hour later a test breakfast of the same composition was taken and the blood examined at hourly intervals subsequently. Three-quarters of an hour were allowed to elapse between the drug being taken and the test-meal being consumed, as it was found that only then did the first physiological effects of the atropine become evident, and it was concluded that until this occurred the administration of food would still provoke active secretion by the pancreas. The results of these analyses confirmed our expectation that atropine would interfere with the usual rise in the sugar content of the blood following a meal, for, as will be seen (Table I., B), the percentage of sugar remained at, and even dropped slowly below, the fasting level for five hours, then it rose to the same level as had been found at the first and second hours when the drug had not been taken. Subsequent experiments showed that if a second dose of atropine were administered about four or five hours after the first this rise could be prevented and the sugar content of the blood be maintained at an almost constant level. Experiments with normal dogs gave very similar results, the usual rise after a meal being abolished in much the same way as in man (Table II., A and B). The next series of observations were carried out on a dog from which about one-half of the pancreas had been removed. He was only mildly diabetic, passing about a gramme of sugar a day in his urine when on an ordinary diet, but his blood-sugar ranged from 0·100 per cent., fasting, to 0·200 per cent. two hours after a test-meal (Table III., A). When a similar meal was given three-quarters of an hour after one two-hundredth of a grain of atropine sulphate had been administered by the mouth, the blood-sugar remained at the fasting level for two hours and then dropped slightly (Table III., B). Examination of the urine showed no trace of sugar.

It will thus be seen that atropine, given in sufficient doses to produce the physiological effects of the drug, has a pronounced influence upon the sugar content of the blood, delaying the normal rise produced by food for several hours in both the healthy and diabetic organism, so that its administration to diabetics with a low carbohydrate tolerance may enable more food to be taken without hyperglycæmia and glycosuria than would otherwise be the case. In this connexion it is interesting to note that on analysis a sample of leaves given to one of us by a patient from South Africa, which were said to be used by the natives for the treatment of diabetes, was found to contain an alkaloid with the chemical and physiological characters of atropine. Our clinical experience has proved, however, that atropine cannot be used indiscriminately for all diabetics, and that the best results are obtained with those of the pancreatic type. It is also useful in some cases showing a concurrent "difference value" curve in the blood, particularly where there is hyperchlorhydria. The explanation of the effects of atropine in these, also in part in pancreatic cases, is probably that it paralyses the secretory fibres of the stomach, as well as of the pancreas, thus interfering with the stimulus furnished by the gastric secretion to sugar production by the liver, which is one of the important factors bringing about the rise in the sugar content of the blood after a meal, as we have shown in a previous paper.[2]

Atropine has been employed previously in the treatment of diabetes by several observers, notably in Italy, but it has not come into general favour, partly because its effects were apparently unreliable, and partly owing to patients objecting to the dryness of the throat and difficulties of vision to which it gives rise. The conflicting results obtained by different physicians, and even by the same physician in different cases, is due, we believe, to the indiscriminate use of the drug in all forms of glycosuria. With selected cases of the appropriate types we find it invariably helpful; but in our experience hepatic cases do not do well on atropine as a rule. The second difficulty can be overcome to a great extent by combining opium, or some preparation of it, with the atropine. It is necessary, however, that sufficient doses of atropine should be used to produce a distinct physiological effect about the times meals are being taken. Before considering the experimental results obtained with a combination of atropine and opium it will be convenient to refer to the influence on the sugar content of the blood of opium preparations alone.

Opium.—Opium and its derivatives have probably been employed in the treatment of diabetes more extensively, and certainly for a longer time, than any other drugs, but their routine use in all cases of glycosuria cannot be too strongly condemned for many reasons. Several explanations of the mode of action of opium in diabetes have been advanced, but it is

[1] THE LANCET 1920, ii., 393.

[2] Brit. Med. Jour., 1921, ii., 586.

probably as a nervine sedative, and owing to its effect on the vaso-motor system and glandular secretions, that it helps to control glycosuria. So far as we are aware, no observations on its influence upon the sugar content of the blood have been made. Our experiments have shown that in a normal individual a sixth of a grain of omnopon, taken three-quarters of an hour before breakfast, lowers the maximum sugar content of the blood and shortens the time of the rise and fall, but has not the same prolonged depressant effect as atropine (Table I., C). Similar results were obtained with a normal dog (Table II., C). In a diabetic dog from which about three-quarters of the pancreas had been removed, ½ gr. of omnopon given by the mouth three-quarters of an hour before a meal, depressed the sugar content of the blood in much the same way as in a healthy animal (Table IV., B), but it was not found possible to bring it down to the normal level by increasing the dose.

TABLE I.—Sugar content of blood in a healthy man following a test breakfast, alone, and under influence of drugs.

—	A Normal.	B Atrop. 1/100gr.	C Omnop. 1/6 gr.	D Omnop. 1/6 gr. Atrop. 1/100gr.	E Ac. hydroch. dil. 60 ♏.	F Sod. bicarb. 150 gr.
Fasting ..	0·080	0·080	0·080	0·080	0·080	0·080
Hours after meal. 1	0·100	0·080	0·100	0·080	0·170	0·100
2	0·130	0·076	0·130	0·090	0·110	0·120
3	0·152	0·070	0·110	0·090	0·080	0·130
4	0·120	0·076	0·080	0·080	0·080	0·140
5	0·080	0·076	—	0·070	—	—
6	0·084	0·100	—	0·080	—	—
7	0·080	0·130	—	0·100	—	—

TABLE II.—Sugar content of blood in a normal dog following a test-meal, alone, and under influence of drugs.

—	A Normal.	B Atrop. 1/200 gr.	C Omnop. 1/6 gr.	D Atrop. 1/200 gr. Omnop. 1/6 gr.	E Colloidal pallamine.
Fasting ..	0·080	0·080	0·080	0·080	0·080
Hours after meal. 1	0·120	0·086	0·100	0·080	0·120
2	0·140	0·082	0·120	0·072	0·140
3	0·100	0·082	0·090	0·070	0·100

TABLE III.—Sugar content of blood in a half-depancreatised dog following a test-meal, alone, and under influence of drugs.

—	A Untreated.	B Atrop. 1/200 gr.	C Atrop. 1/200 gr. Omnop. 1/6 gr.
Fasting	0·100	0·100	0·100
Hours after meal. 1	0·140	0·100	0·100
2	0·200	0·100	0·094
3	0·190	0·096	0·086
4	0·170	0·096	0·086

TABLE IV.—Sugar content of blood in a three-quarters depancreatised dog, alone, and under influence of drugs.

—	A Untreated.	B Omnop. 1/2 gr.	C Atrop. 1/200 gr. Omnop. 1/2 gr.	D Colloidal pallamine.
Fasting	0·130	0·130	0·130	0·130
Hours after meal. 1	0·180	0·160	0·130	0·140
2	0·300	0·260	0·140	0·150
3	0·300	0·240	0·170	0·180
4	—	—	0·160	0·170

TABLE V.—Effects upon sugar content of blood in a normal fasting rabbit produced by intravenous injection of unheated and heated extract of fresh pancreas.

—	A Not heated.	B Heated.
Fasting	0·092	0·092
Hours after injection. ½	0·088	0·092
1	0·084	0·094
1½	0·090	0·092
2	0·092	0·092

TABLE VI.—Sugar content of blood of a normal, fasting rabbit following injection of extracts of adrenal, pituitary, and thyroid glands, compared with effect of a meal.

—	A Normal meal.	B Adrenalin inject. (1·00 c.c.).	C Pituitary inject. (0·5 c.c.).	D Thyroid inject. (0·010gr.).
Fasting	0·096	0·096	0·096	0·096
Hours after meal or injection. ½	—	0·096	0·120	0·100
1	0·138	0·200	0·160	0·120
1½	—	0·164	0·220	0·130
2	0·150	0·100	0·180	0·120
2½	—	—	—	0·100
3	0·162	—	—	—
4	0·150	—	—	—

Atropine and Opium.—We have pointed out that we were primarily led to use a combination of atropine and opium in our clinical work, as it diminished the discomfort associated with the use of atropine; later we found that the combination gave better control of the hyperglycæmia than either drug separately. Experiments on normal human beings and upon healthy and diabetic dogs supported this conclusion. We found that in a healthy man, although the sugar rose to a slightly higher level from the second to the fourth hours after atropine and omnopon, than when atropine alone was taken, subsequently it did not reach as high a level, at least for the succeeding three hours during which the experiment was continued (Table I., D), while a healthy dog showed a lower percentage of sugar in its blood throughout after atropine and omnopon (Table II., D), than an animal that had received the same dose of atropine. After the administration of a mixture of atropine and omnopon to the same dog as had been employed for the omnopon experiment, a very much lower blood-sugar curve was obtained, the maximum height reached being 0·170 per cent., compared with 0·260 per cent., and that an hour later. (Table IV., C). With the half-depancreatised animal previously used for the atropine experiment, a mixture of atropine and omnopon gave the same percentage of sugar at the first hour, but subsequently it dropped below the fasting level more rapidly and to a greater extent than when atropine alone had been used (Table III., C).

Metals.—Various metals and metallic salts have from time to time been used in the treatment of diabetes, but, with the exception of mercury and arsenic in syphilitic cases, they have been employed empirically. There can be no doubt, however, that in some non-syphilitic cases their use has had a beneficial effect on the glycosuria. Experiments we have been recently carrying out upon the influence of inorganic salts upon the diastatic ferment of the liver have suggested a possible explanation. We have found that mercury, arsenic, uranium, and lead prevent the action of liver diastase upon glycogen and starch; zinc, copper, manganese, gold and iron increase it at and about the normal reaction of the body fluids; while palladium, tin, and bismuth have a depressing effect, but have not the same destructive action as the group of metals first mentioned. It would therefore seem that, although metals of the first group in small doses may control glycosurias associated with abnormal activity of the diastatic ferment of the liver, palladium, tin, and bismuth are likely to be more generally useful owing to their less toxic action, and the consequently larger doses that can be safely employed. Experiments we have carried out with colloidal pallamine tend to support this conclusion, and to show that palladium is especially useful in hepatic glycosurias. As there is also excessive formation of diastase by the liver in conditions where the pancreas is inefficient, it may be

helpful in such cases too. Experimenting with dogs we found that colloidal pallamine had no apparent effect on the sugar content of the blood in normal animals, at least in therapeutic doses (Table II., F), but that in a partially depancreatised dog the maximum percentage of sugar reached after a test-meal was not as high as when the drug was not being administered (Table IV., D). As might be expected on theoretical grounds, palladium has a less marked influence upon the sugar content of the blood, however, than atropine in a depancreatised animal. Uranium nitrate, which had a considerable vogue in the treatment of diabetes at one time, appears to act at first as a depressant of the diastatic ferment of the liver, like palladium, but when the administration of the drug is continued for some time this effect diminishes and the sugar content of the blood rises, although glycosuria may not result owing to inflammatory changes that occur in the kidneys.

Alkalies.—Alkalies have been chiefly used to control acidosis in diabetes, but there are cases on record where it is stated that the glycosuria has diminished, and even that all trace of sugar has disappeared from the urine, after the use of large doses. Experiments we have quoted elsewhere[2] have shown that the administration of hydrochloric acid with a meal increases the sugar content of the blood and hastens the attainment of the maximum level in normal individuals in proportion to the amount of acid taken, whereas sodium bicarbonate produces the opposite effects. Examples of the influence of 60 minims of dilute hydrochloric acid (B.P.) and 150 gr. of bicarbonate of soda are shown in the table (Table I., E and F). The evidence we have been able to obtain suggests that these results are due to alterations in the relation between the acid and basic radicles of the blood and changes in its inorganic salt content, which influence the formation of sugar from glycogen by the liver. When, therefore, there is reason to believe that there is a relative increase of acid to basic radicles in the portal blood, carbon dioxide not being considered, it may be expected that alkalies given by the mouth will help to control hyperglycæmia and glycosuria. We have found clinically that, in appropriate cases, alkali therapy is decidedly beneficial, but that the nature of the alkalies used has a material effect on the result. As a consequence of our findings with liver diastase preparations, we have come to the conclusion that, theoretically, a mixture of calcium, magnesium, and sodium salts should control glycogenolysis and prevent hyperglycæmia most efficiently in these cases, and it has proved to be so in practice.

Intestinal Antiseptics.—Antiseptics, and more recently vaccines, have been employed by some observers in the treatment of diabetes, on the ground that the disease may be due to an abnormal intestinal flora. There can be no doubt that diabetes is often associated with gastric and intestinal disturbances, and also that toxic absorption increases, and may produce, glycosuria, but there is no evidence of a specific infection of intestinal origin. Our experiments suggest that the effects of infection upon the carbohydrate metabolism are largely exerted through changes in the liver, partly arising from alterations in the reaction of the blood, and that, although every effort should be made to remove all foci of infection, general treatment by intestinal antiseptics is of little, if any, use. Vaccines, in our experience, have never proved beneficial, but the reverse, and we have seen several cases where considerable harm has followed their administration.

Purgatives.—One of the difficulties from which most diabetics suffer is constipation, and they are certainly better when the bowels are made to act regularly by the use of liquid paraffin, "roughage" in the food, and, if need be, mild laxatives; an occasional mercury purge is also helpful, especially in hepatic cases. Free purgation from the regular use of large doses of salines or drastic purgatives is, however, the basis of several "treatments" for diabetes, and we have been surprised to find what a considerable proportion of the proprietary "cures" for the disease have proved on analysis to consist principally of drastic purgatives. It is claimed that regular purgation clears toxins from the bowels and thus removes the source of the disease, but, until there is much more conclusive evidence than is at present available, this view of the ætiology of diabetes is merely a pious opinion. What is certain is that free purgation is in reality a means of producing semi-starvation, and it is probably owing to the diminished absorption of food that it owes its success, particularly in patients who have not sufficient will-power to resist the lures of the table.

Organo-therapy.—Hitherto experience has not fulfilled the high expectations at first aroused by the discovery of the part the pancreas plays in carbohydrate metabolism, and it has been generally agreed that diabetes is not curable on lines similar to those which have proved so successful in the treatment of myxœdema. Although cases have been published where it has been claimed that the symptoms have been controlled by the oral administration of fresh pancreas, or preparations of the gland, it is the opinion of most critical observers that treatment on these lines is useless and may in fact be harmful, owing probably to the more complete digestion of the food that occurs. Experiments we have carried out with fresh extracts of pancreas injected intravenously into animals have proved that they lower the sugar content of the blood, and the observations of Kleiner[3] have shown that similar results are obtained with depancreatised dogs. It appears to be necessary, however, that the extract should be fresh and unheated (Table V., A B), and that it should enter the circulation direct; moreover, the effect on the blood-sugar is only temporary. Although the extract of the islands of Langerhans, named "insulin," prepared and experimented with by workers in Macleod's laboratory recently, has no doubt certain advantages over similar preparations previously employed, it suffers from the same disabilities of only having a brief and temporary effect on food tolerance and requiring to be injected intravenously or subcutaneously, oral or rectal administration having been found to be useless.[4] It seems unlikely, therefore, that this method will prove of great clinical value, excepting in emergencies where it is necessary to tide the patient over a crisis. Extracts of other organs than the pancreas either have no effect on the sugar content of the blood or increase it. The influence exerted by injections of adrenal, pituitary, and thyroid gland preparations are particularly important, as the sugar content of the blood was found to be increased in all instances (Table IV.), and it is therefore evident that the use of preparations of this description should be avoided in cases of glycosuria and patients with a family history of diabetes.

It is unlikely that treatment by drugs will ever replace control of the diet in diabetes, and we wish emphatically to disclaim any intention of suggesting that lack of care in working out an appropriate diet can be compensated by the administration of drugs. Our object has been to show, first, that if the food tolerance has been accurately determined and is found to be inadequate, then, and only then, the aid of appropriate drugs may be invoked to enable a maintenance diet to be taken and prolong the patient's existence under more comfortable conditions; second, to record our experiments, indicating the way in which various drugs control carbohydrate metabolism, thus laying the foundations of a rational therapy. In diabetes, as in other disorders, accurate diagnosis is the only sure basis of treatment, and we believe it is essential if the best results are to be obtained that the pancreatic, hepatic, and other types we have described[5] should be differentiated by analyses of the blood, urine, and fæces before serious treatment is commenced.

---

[3] Jour. Biol. Chem., 1919, xl., 153.
[4] Jour. Lab. and Clin. Med., 1922, vii., 464; Jour. Canad. Med. Assoc., 1922, xii., 141.
[5] THE LANCET, 1921, i., 274.

SOME CASES OF OBSCURE INFECTION.

BY R. FIELDING-OULD, M.D.OXF., M.R.C.P.LOND.,
BARRISTER-AT-LAW.

IN submitting details of the following cases, I suggest that they constitute a separate clinical entity readily distinguishable from the large group of ill-defined fevers we so constantly meet with in practice. They are, I think, interesting from a clinical point of view, and as similar cases have been observed in many parts of the country at various times it seems right that they should be brought forward as the result of clinical observations, in order that their bacteriology may be definitely ascertained. There is strong presumption, as will appear, that they are the result of infection from one of the typho-coli group, and their bacteriological investigation is rapidly becoming overdue.

Epidemics of so-called influenza come upon us with great regularity. With each new invasion, however, we are puzzled by many cases which differ in some important respects from those we are accustomed to regard as typical or classical influenza. As has been truly said, "each influenza epidemic may well be a new disease, so different are the symptoms." In the present state of our knowledge several types of so-called influenza are recognised, but it must at once be admitted that this comprehensive term is rapidly becoming somewhat overworked. Mrs. Carlyle, in 1847, unkindly suggests that the term 'influenza" had been invented by the doctors to save themselves the trouble of making a diagnosis. No doubt many of the attacks which are now in a loose way diagnosed as influenza are something else. Long before influenza returned in 1890 febrile attacks of indefinite character were frequent enough; these were called by various names, the commonest being "febricula." Some of them were, no doubt, mild typhoid fever.

While recognising several varieties of true influenza we constantly meet cases so atypical in their manifestations that we are bound to look further for a diagnosis. The fact is that bacteriology, in this connexion, has lagged somewhat in the rear, instead of taking, as it should, its rightful place in the forefront of the battle. In consequence we have become confused and content to group under the one head of influenza several different diseases, which, although they bear some resemblance to each other in their symptomatology, may, I submit, be distinguished. I desire to bring forward a group of cases observed during last winter and spring which will illustrate the point at issue. Influenza of classic type as met with in 1890 and 1918 may be described as a disease characterised by sudden onset, high fever, catarrhal symptoms of larynx and lungs, and pains in back and limbs, accompanied usually by rapid cardiac action. When the fever falls, there follows a variable period of marked asthenia, with subnormal temperature and a more or less prolonged convalescence. There is also frequently as a sequela marked apathy of body and depression of mind. Dr. Samuel West wrote: "Perhaps the most remarkable characteristic of influenza is the post-febrile depression, during which period the temperature is subnormal, the pulse slow, and the bodily powers greatly reduced." Although cases with a slow pulse in the early stages have been described by Goodhart, I think the rule is a rapid pulse-rate, and often this rate is out of all proportion to the rise in temperature, persisting for long periods. The above is a short description of true influenza as we all know it, and in this disease we find in the throat and sputum Pfeiffer's bacillus accompanied by secondary infections of staphylococci, streptococci, and pneumococci. Now it is common knowledge that we often meet with cases which present symptoms of a markedly different character. This was especially true of the epidemic of last winter. Not only in London, but also in other parts of the country, many of these aberrant cases were noted. It is my desire to submit a series of such cases conforming nearly to the so-called gastric type of influenza. In one case (No. 3) Dr. Hubert Fry was able to obtain agglutination with paratyphoid B, and it is my view that all these cases are instances of infection by this or an allied micro-organism. It is, I think, a matter of some doubt whether any cases occur which can be rightly called "gastric influenza." No doubt, as in other fevers, there are cases of influenza in which the gastric symptoms are more or less prominent features for a day or two, but it is only obscurantism to place them in a distinct class with a label all to itself. No doubt, in the past, epidemics of gastro-intestinal disease have occurred which closely resemble typhoid fever. It is my thesis, however, that such cases, although occurring side by side with true influenza, are really due to a different and wholly distinct infection. Dr. Norman Dalton admits that "it is extremely difficult to prove that any particular case of intestinal disturbance is due to influenza." Weichselbaum failed entirely in such cases to find any specific organism of influenza.

Symptoms of the Cases Described.

In the cases described it will be noticed that the onset was never sudden, but the pyrexia followed after three to four days' definite malaise of varying severity. On the other hand, all writers on influenza lay stress on the suddenness, often dramatic, of its attack. Sir Clifford Allbutt speaks of this sudden onset as a "characteristic feature." This difference in the mode of onset is remarkable and serves at once to distinguish one group of cases from the other. In the majority of my cases there were no catarrhal symptoms in the chest, but all but one complained of sore throat and some dysphagia. One or two had signs of slight and transient bronchitis.

This comparative absence of cough and catarrh of larynx is, I suggest, significant when one recalls the condition found in cases of undoubted influenza. As regards the circulatory system, the heart was never involved in the cases submitted, and the pulse-rate, although increased, was never so high as the temperature would warrant. Here again we get an important distinction which tends to show that these cases were not due to invasion by Pfeiffer's bacillus. But the most striking manifestations appeared in connexion with the digestive system. In all my cases the liver was more or less obviously affected. Six patients showed a definitely enlarged and tender liver, and in all others there was tenderness of varying intensity on palpation. There was jaundice in varying degree. In three cases this was intense, and in others it was definite but less marked. In all cases some degree of icterus was seen. In five cases the spleen was readily palpable, and in six cases there was definite tenderness in the splenic area. Accompanying these objective signs there was severe vomiting as an early symptom. This usually passed off after three or four days, but in two cases was very persistent for a week or more. The tongue was covered with brown fur with a red tip. Diarrhœa of varying degree occurred in all my cases. In some it was severe, but in all definite. The character of the stools suggested the pea-soup stools of enteric at first, but after a few days they became watery and colourless. In all cases where the abdominal symptoms were marked there was pain in the region of the appendix, with fullness and resistance on palpation. Although causing some anxiety, these appendix manifestations passed off usually in three or four days.

Dubz[1] mentions several cases in which the symptoms at the onset of the disease have suggested peritonitis. He is writing of influenza, but goes on to say that while such cases were noted in the epidemics of 1918 and 1919, there were many more presenting this characteristic in the epidemic of last winter. This confirms my observations in London and similar observations made by others in various parts of the

[1] Schweiz. med. Woch., April, 1922.

country. It is obviously a confession of ignorance to describe such cases as influenza.

In five of my cases there was transient albuminuria, but in one case it persisted for six weeks. The nervous system was not noticeably affected, and during convalescence there was no sign of the depression so often found after influenza. The presence of scarlatina-like spots was a noteworthy feature in some cases. These have been noticed in some localised

CHART 1 (Case 1).

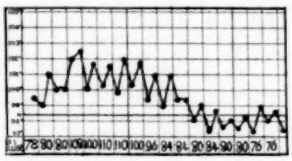
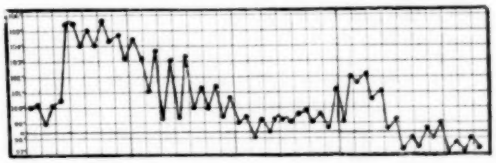


CHART 2 (Case 2).

areas at different times, but especially during last winter. These appeared in successive crops chiefly on the chest, and on the back between the shoulders. Most frequently they were apparent on the fifth to seventh day, but had usually disappeared by the end of the second week. Another feature of some note was the tendency of these cases to relapse. In the charts submitted here only one relapse is recorded, but I can call to mind several cases where three or more relapses occurred. (See Chart 4.)

by gradual rise of temperature to 105·6°. Pharynx much inflamed, tonsils swollen and painful. Rigors. Throat symptoms gradually subsided, and vomiting and diarrhœa of severe type set in. Liver enlarged and painful with deep jaundice. Spleen palpable and very tender. Crops of spots appeared on back, flanks, and chest about the tenth day of disease. Widal negative. Temperature gradually returned to normal on fifteenth day, and all symptoms abated. On twenty-first day a well-defined relapse occurred with increase of jaundice and the appearance of further spots.

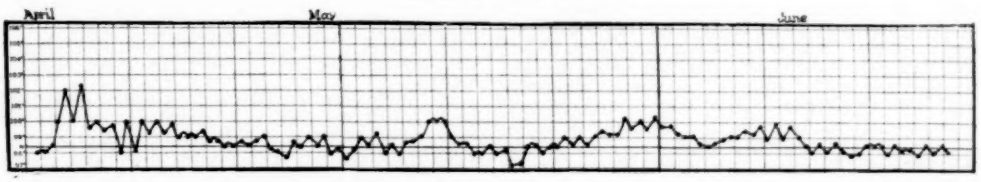
CHART 3 (Case 3).



Patient became extremely emaciated, but made a complete recovery. The heart was never affected and no tachycardia or nervous depression followed. The pulse-rate was always moderate, and never so high as might have been expected from the high temperature. On one occasion, with a temperature of 104°, the pulse-rate was 118. Dr. W. J. Hadley saw this case in its early stages with me in consultation. Dr. Hubert Fry very kindly examined the blood and obtained a definite agglutination with paratyphoid B. (Chart 3.)

CASE 4.—Female, aged 39. Gradual onset. Throat symptoms slight, with a few moist râles in chest. Liver

CHART 4 (Case 4).



It is clear that the cases observed by Dr. Clayton Jones, of Silverton, Devon, constitute a group presenting similar characteristics to those which I have described. He writes that his "cases gave a history of a common cold for five or six days followed by sudden pyrexia. Intense pain between the shoulder blades with brown furred tongue. Sometimes vomiting and diarrhœa, and very commonly relapses occurred."

Unfortunately it was impossible to deal adequately with the bacteriological aspect of these cases. In all the cases throat swabs were examined, but in no case was any specific organism found in either throat or sputum. Streptococci were always found, but *B. Pfeiffer* was conspicuous by its absence. In one case, however (No. 3), a Widal test proved negative, but Dr. Hubert Fry obtained a definite agglutination with paratyphoid B.

CASE 1.—Male, aged 27. Seen first Feb. 6th. Had had four days' malaise with sore throat. "Hardly able to drag himself to work." On 4th and 5th had slight vomiting with abdominal pain, which became more frequent and severe. Complained of pains in legs and back. Temperature rose to 102·6° F. on the fourth day, became remittent, and gradually declined to normal on eleventh day of fever. Liver definitely enlarged and spleen tender, and just palpable. Definite but not severe jaundice. Lungs clear. Pulse very soft, did not rise above 110. A few scarlatina-like spots on chest and back. (Chart 1.)

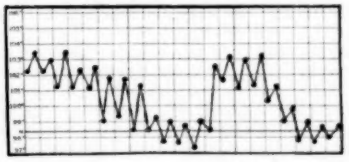
CASE 2.—Male. Had felt ill for three days. No sore throat, but injected fauces and some huskiness of voice. Temperature fourth day rose to 102·2°. Severe pains in back and limbs. Slight jaundice and some diarrhœa. Pain and feeling of resistance in appendix area. Liver definitely tender, but not palpable. Spleen tender and palpable. Pulse-rate rose to 106 on fourth day. Gradual fall of temperature to normal tenth day. Convalescence rapid. (Chart 2.)

CASE 3.—Female, aged 35. This was a severe case with high fever and definite relapse. Three or four days of tiredness, loss of appetite, and increasing lassitude followed

enlarged. Spleen palpable. Sickness and diarrhœa. Jaundice definite. In this case occurred three definite relapses with exacerbation of symptoms on each occasion. At no time was the pulse-rate above 84. No spots seen. Uninterrupted recovery. (Chart 4.)

CASE 5.—Male, aged 25. Began with symptoms of common cold, then high fever with vomiting and diarrhœa. Severe pain in back. Liver enlarged and spleen tender. Jaundice. Tenderness in area of cæcum. Relapse. Crops of spots on back and abdomen. Pulse always good tension and never above 100. (Chart 5.)

CHART 5 (Case 5).



CASE 6.—Female. Felt ill for three days, with lassitude and nausea, then suddenly seized with severe diarrhœa and vomiting. Thought she had been poisoned by some food. Temperature 101°. Jaundice. Liver palpable. No relapse. A few spots, not well marked.

CASE 7.—Male. History of a fortnight's illness with shivering followed by acute diarrhœa and vomiting. Patient when first seen by me had marked jaundice and enlarged liver. Epistaxis on two occasions. Stated that in his regiment there seemed to be an epidemic of this disease, which was put down as influenza.

It cannot fail to be noticed how closely this group resembles the classic cases described by Lord Dawson as paratyphoid. In his cases, however, the spleen and liver seem never to have been enlarged, but in both groups vomiting and diarrhœa are noted specially. Jaundice is also common. Finally, I venture to submit the thesis that commonly included under the diagnosis of influenza there are a number of cases due to infection by one or other of the typho-

coli group. This may be paratyphoid A, B, C, or even D. As research proceeds we shall doubtless be able to fill up the remaining gaps in the series which extends from *B. gaertner* to the *B. typhosus*. It should be added that in the early part of 1922 dogs and cats in London suffered from some disease the symptoms of which closely resembled those above described. This association of the lower animals with a human so-called influenza epidemic has been noted before, and was, I am informed, a feature of the 1918 epidemic in France. Dr. Clayton Jones also mentions the fact that in Devonshire a number of cats died during the epidemic.

I should like to express my thanks and sense of indebtedness to Dr. Hubert Fry for his kindness and help in the bacteriological investigations.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF MEDICINE.

A SPECIAL meeting of this section of the Royal Society of Medicine was held on Dec. 15th, Dr. NEWTON PITT, the President, in the chair, when a paper was read by Dr. T. G. LONGSTAFF on

EXPERIENCES WITH THE EVEREST EXPEDITION.

This was illustrated with many excellent photographs taken by Mr. T. H. Somervell and the speaker. Dr. Longstaff said that one of their greatest difficulties was that of obtaining water. At these high altitudes the snow evaporated and there was no ice above 25,000 feet. The members of the expedition were divided into two parties, one of which used oxygen, while the other did not. The base camp was at 16,000 feet, the second camp was at height of 19,500 feet, the third at 21,000 feet, and the fourth at 23,000 feet. The first party, not using oxygen, climbed from 21,000 feet to 23,000 feet in four hours—that is, at the rate of 500 feet per hour, while the second party, with oxygen, did the same in three hours—that is, at 666 feet per hour. In 1907 Dr. Longstaff, with oxygen, had climbed another peak at 600 feet per hour. The coolies, carrying 20 to 30 lb. weight, also climbed to the fourth camp at a height of 23,000 feet. The first party climbed to 27,000 feet. They climbed from 23,000 to 25,000 feet at the rate of 400 feet per hour, while the second party, with oxygen, climbed the same distance at 666 feet per hour. The important point was that with oxygen the rate did not vary, while the party without oxygen climbed with more difficulty at higher altitudes. All members of the expedition suffered from frost-bite, superficial only in the oxygen-using party, and very severe in the other party. Dr. Longstaff was therefore of the opinion that oxygen protected against frost-bite. He also thought that if the party could have remained long enough at the very high altitudes, 23,000 to 25,000 feet, to get thoroughly acclimatised, they would have been able to reach the top of Everest. But a succession of accidents, either frost-bite, or failure of the oxygen apparatus, or bad weather, handicapped them when success appeared probable.

Changes in the Blood.

Mr. J. BARCROFT briefly described some of the observations made during the expedition to the Peruvian Andes (chiefly at Cerro de Pasco). This expedition was undertaken for the purpose of observing the effect of high altitude on the physiological processes of the human body. Mr. Barcroft said that certain symptoms due to high altitude—vomiting, headache, defective vision, and hearing—passed off after a time, but that certain alterations in appetite, temper, &c., remained. All these symptoms, he considered, were a response on the part of the body, and more especially of the brain, to a change in the nature of the blood. The members of the expedition had examined the nature of the blood in themselves, the resident Anglo-Saxon miners, and the natives whose ancestors had lived at Cerro for generations, and who were therefore thoroughly acclimatised.

Arterial Oxygen Saturation.—The speaker gave tables illustrating the saturation of the blood with oxygen. That of the members of the expedition was 95 per cent. saturated at sea-level, but at Cerro (14,200 feet) it was approximately 80 to 90 per cent. This corresponded roughly with the oxygen saturation of the blood of the natives of Cerro. The arterial blood as withdrawn from the radial artery with a syringe was dark and of a venous appearance. Yet owing to the excess of hæmoglobin present there was actually more oxygen present in 1 c.mm. of blood than at sea-level.

The number of red corpuscles in 1 c.mm. of blood of the members of the expedition was about 6·5 to 7·5 millions. In the natives it was slightly higher. The nature of these corpuscles had been studied by Dr. H. S. Forbes, another member of the Andes expedition. Certain cells show a reticulum with cresol-blue staining and are considered to be red blood corpuscles. These reticulated red cells showed a marked increase during the ascent. After the descent these cells fell to below their normal percentage. In the natives the ratio of reticulated to unreticulated red cells was not greatly increased, but the absolute number of reticulated cells per c.mm. was about 50 per cent. greater than normal. This, the speaker argued, suggested hypertrophy of the bone marrow. There were no nucleated red cells.

"*Oxygen Dissociation Curve.*"—There was a definite change in the affinity of hæmoglobin for oxygen. This was shown by the rise in the oxygen dissociation curve, so that at any oxygen pressure the hæmoglobin would take up more oxygen than before.

In conclusion, Mr. Barcroft said that he agreed with Dr. Longstaff that the members of the Everest expedition could have reached the top if only they could have stayed long enough at the different camps to get thoroughly acclimatised to the high altitudes.

Aviation Experiences.

Dr. MARTIN FLACK said that an aviator was not long enough in the upper air to become acclimatised to great heights. Certain immediate effects of high altitude were deepened breathing, which varied to actual distress; a rise of blood pressure, muscular weakness, impaired perception, and diminution of morale. Headache, fainting, and vomiting were more rare. More remote effects were a lessened respiratory capacity and certain nervous symptoms. Oxygen tended to abolish these effects, especially on long expeditions, and in high flying the continuous administration of oxygen was most advisable. Sport was one of the best methods of maintaining full respiratory and circulatory efficiency to combat the ill-effects of high flying.

Mr. T. H. SOMERVELL, a member of the Everest expedition, said that he and another member, Mr. Finch, had tested their efficiency in the "Box Experiment" at Cambridge. Mr. Finch was then more efficient, but on the actual expedition he (Mr. Somervell) had proved the more fit, probably because he became more easily acclimatised to the altitudes. He had first experienced Cheyne-Stokes breathing at a height of 16,000 feet, but after five or six days it passed and he suffered no other distress. Finch experienced mountain sickness at 16,750 feet, while Cranford and Morris had attacks at 19,500 feet. It was noticeable that breathing became more and more rapid and deep.

Prof. J. C. MEAKINS, a member of the Andes expedition, said that the cyanosis of persons living at high altitudes resembled that of a case of pneumonia. He had noticed among the natives of Cerro the frequency of the presence of club fingers, not associated with pulmonary or cardiac disease. Their experiments showed that the basal metabolism of some members of the expedition increased (these

members were all found to have lost weight) while it decreased in others. The diffusion coefficients were lower in those members who were not susceptible to mountain sickness. Measurements of the chests of the natives, when they were compared with those of the Anglo-Saxon group, showed an increase in the width of the chest relatively to the height of the person. Roughly speaking, a native of 5 ft. 3 in. had the chest of a man of 6 ft. X ray photographs of the chest showed a distinct difference in the angle of the ribs; there was a greater rib slope in the case of the natives. Radiograms were taken of the hearts of five members of the expedition at sea-level either before or a month after sojourn at a high altitude; at Oroya (12,178 feet) within two hours after arrival, and at Cerro de Pasco (14,208 feet) after two and three weeks' residence on the sierra. It was found that the heart showed a definite contraction in size in those who stood the altitude well.

Mr. W. B. FARRINGTON said that during 1917 he had had much experience of high flying. He personally found that in flying to a height of 18,000 feet he experienced distress, which soon passed off, if he went straight up in about one and a quarter hours; whereas, if he mounted slowly, taking about two and a half hours, he experienced no distress. He was a believer in the use of oxygen while flying. The prejudice against it among airmen was due (1) to the weight of the cylinders, and (2) to the unreliability of the apparatus.

Mr. MALCOLM L. HEPBURN had pointed out that the symptoms of anæmia at sea-level were exactly similar to those complained of by mountain climbers; the former showing poorness of hæmoglobin in the presence of a full supply of oxygen, the latter showing richness of hæmoglobin in the presence of a poor supply of oxygen. He concluded that (1) illness due to the effect of high altitudes need not be considered as a clinical entity below 17,000 feet at least; (2) it was important to eliminate fatigue as far as possible by careful training and ingestion of proper and suitable food; (3) in addition to training, high mountain climbing must be made as easy as the conditions of the mountain will permit and must be made at as slow a rate as possible to economise muscular work; (4) it was necessary above a certain height to be equipped with a supply of oxygen. Twenty-seven years ago he expressed the opinion that provided (*a*) the proper organisation could be carried out, (*b*) the weather would allow of the establishment of a sufficient number of camps on the mountain, (*c*) the mountain to be ascended were relatively easy, and (*d*) the carrying of oxygen were rendered feasible, the physiological effects of high altitudes would not prevent the highest point on the earth's surface from being ascended by man. This opinion was challenged at that time by many climbers, including Edward Whymper and Sir Martin Conway.

Prof. J. S. HALDANE said he did not think that Mr. Barcroft's results had shaken the evidence furnished by the Pike's Peak expedition that increased oxygen secretory activity of the lung epithelium is a main factor in acclimatisation. And the fact that the Everest expedition had reached a height of 27,000 feet without the use of oxygen had considerably strengthened that evidence. In 1919 Meakins, Priestley, and the speaker had pointed out that the diminishing oxygen saturation of the blood from an artery as altitude increased must be out of all proportion to the diminution in the mean oxygen pressure in the blood leaving the lung alveoli. It was this latter value only which was concerned in the question of oxygen secretion, and that they had measured on Pike's Peak. They already knew it was useless to measure only the percentage saturation with oxygen of arterial blood.

The PRESIDENT, in proposing a vote of thanks to the speakers, asked Mr. Barcroft whether, when the blood was 85 per cent. saturated with oxygen, an increase in saturation could be brought about by breathing pure oxygen. Mr. BARCROFT replied in the affirmative.

SOCIETY OF MEDICAL OFFICERS OF HEALTH.

MATERNITY AND CHILD WELFARE GROUP.

A MEETING of the metropolitan branch of this group was held at 1, Upper Montague-street, London, W.C., on Dec. 12th, Dr. H. K. WALLER presiding.

Mr. EARDLEY L. HOLLAND gave an address on the

DANGER OF BREECH PRESENTATION TO FŒTAL LIFE.

He remarked that the position of the fœtus often changed during the latter part of pregnancy, in some cases several times, the position only being stable shortly before turn. For this reason figures from antenatal clinics did not give a true indication of the frequency of breech presentations. Hospital statistics also did not give a true picture of primary breech presentation uncomplicated except by such conditions as extended arm or leg or prolapsed cord, because they generally included cases complicated by conditions like contracted pelvis or placenta prævia, and secondary breech presentations (i.e., breech by version).

Frequency and Mortality Rates.

About 3 or 4 per cent. of all deliveries were, he said, uncomplicated breech presentation. To estimate the mortality rate was difficult, because it differed as between primiparæ and multiparæ, and according to the class of practice (midwives', private practitioners', obstetrical specialists', hospital, &c.). The authorities differed very much, a commonly accepted fœtal mortality rate in such uncomplicated breech presentations being 12 per cent. for primiparæ and 8 per cent. for multiparæ, an average of 10 per cent. On the basis of these figures, there would be about 3000 fœtal deaths per annum in England and Wales from this cause, equal to about 10 per cent. of all stillbirths. In his own series of 300 stillbirths, Mr. Holland had 16 cases of uncomplicated breech labour, equal to only 5 per cent.

Cause of Fœtal Death.

The causes of death in breech presentation usually cited in the text-books were (1) compression of the umbilical cord between the head and pelvic brim; (2) premature placental separation; and (3) premature efforts at respiration due to cutaneous stimulation by cold air. Mr. Holland did not accept these conclusions, and stated that he regarded cranial stress as the chief cause of death. He had found cerebral hæmorrhage caused by a tear of the tentorium cerebelli in 80 per cent. of stillbirths following breech presentations. He attributed this to cranial stress brought about by the moulding of the fœtal skull during delivery. Lantern slides were exhibited showing how the falx cerebri and the tentorium made up a septal system of stays whose function it was suggested was to restrain excessive moulding of the plastic skull. The strengthening bands of fibres in these structures were obvious on inspection, and were placed where they could best resist the strain caused by the moulding in vertex or breech presentations. Mr. Holland had found that the tears occurred just where they would be expected on the hypothesis that they were due to excessive strain from this cause. The septal structures were nearly avascular, but the tears commonly involved the venous sinuses and thus lead to the fatal hæmorrhage.

Prevention of Fœtal Mortality.

The fœtal head had no more resistance to overcome in breech than in vertex presentations, and the greater incidence of cranial lesions in the former was due to the stress caused by the more rapid dilatation of the maternal passages. The body of the fœtus caused only moderate stretching, and great stress was set up if the head was afterwards delivered rapidly. Mr. Holland suggested that this consideration called for a revision of methods. The traditional method of delivery of the head in breech presentation was based on the assumption that a delay of ten minutes would be fatal, and the occasion was often dealt with as

if it were a matter of seconds. He believed that it was wrong to hurry unduly the birth of the after-coming head, and that this through cranial stress was often the cause of fœtal death. He was of opinion that the fœtus would not be killed by ten minutes' cord compression, and cited the prolonged apnœa after scopolamine from which the fœtus would recover. The fœtal death-rate from breech presentation would fall when it was realised that deaths were not due to cord compression but to intracranial stress. The delivery of the head should be managed deliberately and gently, after suitable preparation, if necessary, of the vulva and perineum—by lateral perineotomy, for example. Mr. Holland considered that no fœtus ought to die from uncomplicated breech presentation. At the same time he agreed that the condition was one which demanded great obstetric skill.

Prevention of Breech Presentation.

Owing to fœtal mobility it was useless to correct a breech position in the twenty-eighth to thirtieth week, or even later, unless the patient was to be seen again. It was essential that she should be examined two (or three) weeks before term. An external version at that time would almost certainly produce a stable vertex presentation. It could not always be effected, however, even under an anæsthetic.

A vote of thanks was accorded to Mr. Holland on the motion of the PRESIDENT.

LIVERPOOL MEDICAL INSTITUTION.

A PATHOLOGICAL meeting of this Institution was held on Dec. 7th, Prof. J. HILL ABRAM, the President, being in the chair, when a number of interesting specimens were shown.

Dr. JOHN MAY read a paper on

Myocardial Disease

as observed in five hearts, in each of which abnormal electrocardiograms indicating incoördination in the manner of ventricular systole were present. Microscopical examination revealed some degree of pathological change in and around the functional tissues in all except one. That one was a case of Stokes-Adams's disease. No explanation was offered to account for the complete block or the periods of ventricular stoppage. This block was not modified by a hypodermic injection of atropine. After investigating these cases and the literature, one might, Dr. May said, conclude that it was not possible to estimate from an electrocardiogram the degree of the pathological change; but an abnormal electrocardiogram of the nature described justified the assumption of some myocardial damage. As a matter of clinical experience, there appeared to be little doubt that electrocardiograms conforming to this type materially add to the gravity of the prognosis. The cases were as follows: 1. Female, aged 20. Rheumatic myocarditis. Mitral stenosis. Clinically, moderate degree of heart-block, made complete by digitalis, relieved by atropine. 2. Male, aged 68. Stokes-Adams's disease causing death. Clinically, complete block. 3. Male, aged 55. Angina pectoris. Electro-cardiograph indicating right bundle lesion. 4. Male, aged 55. Auricular fibrillation. Chronic renal. Adherent pericardium. Electrocardiograph bizarre. 5. Male, aged 47. Syphilitic myocarditis with varying degree of heart-block. Electrocardiograph indicating involvement of the bundle.

Dr. PHŒBE INCE, describing her technique in the foregoing cases, said that a block of tissue was cut from the heart to contain the A.-V. node, the main bundle, and the upper part of the right and left branches. Serial sections were cut, one block being cut in the horizontal, the other four in the longitudinal plane. The sections were stained by van Gieson, a few in each case being also stained by Verhoeff's elastic tissue stain. Disease of the arteries was demonstrated in Case 4. In Case 3, although there was marked atheroma of the coronary arteries, the artery to the node was unaffected. In the case of syphilitic myocarditis, the arteries were apparently unaffected. In the rheumatic heart (Case 1) the main bundle had become involved through the extension of the inflammatory reaction at the base of the triscuspid valve. In Cases 2, 3, and 4 the bundle had suffered in varying degree from chronic fibrosis spreading inwards from the fibrous septum. In Case 5 the damage was most marked in the A.-V. node where the nodal elements were almost entirely replaced by vascular tissue. The main bundle showed lymphocytic infiltration and fibrosis becoming less severe as the bundle was traced to its branches. The left ventricle showed a patchy syphilitic myocarditis.

Prof. ERNEST GLYNN spoke of the possibility of lesions in the nervous mechanism of the heart as well as in the myocardium in such cases.

Dr. I. HARRIS thought that heart-block due to disease of the A.-V. bundle alone would never give the Stokes-Adams's syndrome. As long as the ventricles were normal they would develop a rhythm of their own which, although at a slower rate, would be quite regular. Asystole for a long period would not take place. In cases where the syndrome appeared the long period of asystole suggested that there was something wrong in the part of the heart below the A.-V. bundle. Either the ventricle under certain circumstances was unable to develop stimuli of its own, or it was unable to respond to stimuli owing to the fact that its refractory period was longer than normal. It was therefore possible that the Stokes-Adams's syndrome might appear in cases where the A.-V. bundle was normal. The Q-R-S complex was usually abnormal in such cases.

MANCHESTER MEDICAL SOCIETY.

A MEETING of this Society was held in the University of Manchester on Dec. 6th, Sir WILLIAM MILLIGAN being in the chair.

Dr. E. M. BROCKBANK made a communication on

Pernicious Anæmia.

He said that he agreed that blood platelets come from red corpuscles and that their behaviour to solvents and peptic digestion, which is like that of nuclein, supports the view that they are the remains of the nucleus of the erythroblasts. Blood platelets were therefore an indication of the activity of the marrow. There were many more blood plates in secondary anæmia than in normal blood and there was increased activity of the marrow in this condition. In pernicious anæmia there were very few blood plates seen. This suggests that the red corpuscles in pernicious anæmia are older than normal, that they resist the usual destruction of the red cells, and that there was evidence of erythroblastic inactivity.

Dr. C. P. LAPAGE read a paper on

Asthma in Children,

dealing with the part played by local lesions of the chest. He said that asthma was often divided into true nerve-storm asthma and into bronchial asthma, due to enlarged bronchial glands and other troubles in the chest. In both cases there is an element of spasm which is probably of reflex origin. A study of the factors determining asthma showed that they could be put under three headings: 1. The individual, who may be of exudative type or may have become sensitised. 2. Due to external irritants, which may be connected with (*a*) foreign proteins, animal, pollens, egg, milk, or bacteria; (*b*) metabolism, (*c*) climatic. 3. Due to internal irritants (local lesions): (*a*) nose and throat; (*b*) lungs and bronchi; (*c*) intrathoracic glands; (*d*) adhesions and fibrosis. The paper was intended to show that the internal irritants often played an important part in the determination of attacks of asthma and, it might be, in the sensitisation of the individual. An analysis of cases of asthma in children showed that, in a large proportion, there was a family history of the exudative diathesis, and in many there was also a personal history of manifesta-

tions other than asthma in the case under observation. The common manifestations of the exudative diathesis in childhood were: (1) curd dyspepsia, (2) urticaria, (3) eczema, (4) asthma, (5) hay-fever (periodic nasal catarrh), (6) angio-neurotic œdema. Coming to the question of local lesions in the 75 cases of asthma, it was shown by a correlation of the clinical examination and the X ray examination that a very large proportion (73 per cent.) had definite chest lesions pointing to tuberculosis. The estimation of tuberculosis was made first on the clinical examination, supplemented by the evidence from the X ray screen. It was noticed also that in many cases attacks of asthma tended to increase in frequency and in severity with the onset of the illness and debility accompanying the chest lesion and to subside when the child was treated on anti-tuberculosis lines. Slides were shown demonstrating the changes found. These were as follows: bronchial glands, 31; mediastinal, 6; cervical, 5; fibrosis roots, 18; adhesions, 5; chronic bronchitis, 11. Many of the cases showing the changes had a personal history of the exudative diathesis. The conclusion drawn was therefore that the subjects of asthma in children were of the exudative diathesis and that the exhibition of asthma often depended on the presence of local lesions of the chest, in most cases of a tuberculosis nature, and that the asthma attacks might culminate and subside concurrently with the culmination and subsidence of these lesions.

Mr. J. P. BUCKLEY read a paper on

Meckel's Diverticulum and its Urgent Complications, illustrated by two rare cases. He first gave a short account of Meckel's diverticulum, and drew attention to the fact that the diverticulum was probably more common than was suggested by Sir Norman Moore's note in the Transactions of the Pathological Society in 1884, where he stated that only 13 were found in the post-mortem records of St. Bartholomew's Hospital over a period of 16 years. Mr. Buckley raised the question as to which was the most likely method by which the vitello-intestinal duct disappeared normally; whether, as stated by Keith, it became occluded and shrivelled up, or whether, as stated by Marshall, it separated from the intestine. He went on to describe two cases upon which he had operated—namely, a case of Littré's hernia in a woman of 49 and a case of acute intestinal obstruction in a boy of 14 years due to volvulus of a Meckel's diverticulum. He raised again the question as to whether the name of Ruysch should not rather have been attached to the hernia of the diverticulum than that of Littré. Mr. Buckley insisted that a true Littré's hernia was one containing only the diverticulum and no small intestine in addition. He pointed out that Littré's hernia rarely occurred other than on the right side, that it was seldom recorded other than in the complicated state. The complication of the hernia should rather be described as inflammation than strangulation. Differential diagnosis would have to be made between inflammation of an appendix in a hernial sac, inflammation of a Littré's hernia, and acute suppurative funiculitis. He pointed out that an inflamed Littré's hernia was a much less dangerous condition than a Richter's hernia. Volvulus of a Meckel's diverticulum was rare because diverticula of fairly large bulk and a narrow attachment to the bowel were uncommon. During the last nine months the diverticulum in the case operated upon had been causing occasional attacks of pain.

CARDIFF MEDICAL SOCIETY.

A CLINICAL meeting of this Society was held on Dec. 12th, Dr. F. BUCKHAM presiding.

Dr. G. I. STRACHAN gave a demonstration of

Fœtal Syphilis.

As a cause of fœtal death syphilis had previously been ranked too high, and it was safe to say that not more than about 15 per cent. of still-births could be attributed to this cause. The typical maternal history of several previous still-births was not always present, and, of course, in a primipara was not available. Some of the mothers presented specific lesions, but the majority either showed no lesions or these were present in a slight degree and easily missed. While in the majority the W.R. was positive, this was not always so, and he had examined cases where the reaction of the maternal blood was negative, but in which spirochætes had been demonstrated in the fœtal tissues. In the examination of the fœtus the main naked-eye change found was enlargement of the spleen; liver enlargement was usually also present, but was not so constant or so reliable a sign as splenic enlargement. The lungs were mostly of a firmer consistence than normal, but typical pneumonia alba was found in only two cases. Some irregularity of the osteochondral junction in the long bones was usual, but well-marked osteochondritis, as shown by a broad irregular area of defective calcification extending from the epiphyseal line, was found in only one case. A number of photomicrographic slides illustrated the lesions found in the various organs. These were in the nature of cirrhoses, and the difference between the open texture of a normal fœtal organ and the firm thick texture of a syphilitic organ was brought out. Sections of the lung, liver, spleen, pancreas, and placenta were shown, also a plate showing the differences between normal, syphilitic, and macerated bones. Regarding the placenta, the main changes found consisted in relative and absolute enlargement with pallor and a firmer consistence than normal; hæmorrhage and infarction formation had not been observed.

Exhibition of Cases and Specimens.

Dr. J. W. TUDOR THOMAS showed a case of Miliary Disseminated Tuberculous Iritis in a girl aged 5, whose left eye had become inflamed four months ago. At that time there was very little pain and some ciliary injection. The iris was covered with yellow tubercles, mainly at the periphery, some at the pupillary margin. A few posterior synechiæ were present, and deposits of keratitis punctata on the posterior surface of the cornea. There was no evidence of tubercle in the lungs. The treatent had been injections of tuberculin, syrup ferri iodidi, and atropine ointment locally. The condition was now very much better, the injection having disappeared, and only one patch of deposit remaining on the posterior surface of the cornea. The tubercles were smaller, and some had disappeared. The other eye appeared quite healthy, and the general health of the patient had improved considerably.

Dr. ABEL EVANS showed a case of Myotonia Congenita (Oppenheim's Disease). The boy, 3 years of age, could not sit up, stand, or walk. He lay in any position in which he was placed, and, though there was no absolute paralysis, there was great muscular weakness; all voluntary movements were devoid of vigour. His muscles were small and soft, but showed no wasting; it was almost impossible to distinguish them by palpation from subcutaneous tissue. The facial and sphincter muscles were unaffected. Passive movements at all the joints were unusually free in every direction. Electrical excitability was diminished to faradism and galvanism; he could bear strong faradic stimulation without distress. The deep reflexes were absent, but the cutaneous and organic reflexes were normal. His general health had always been good. Little was known of his family history except that his mother died of eclampsia at his birth.

Dr. EVANS further related a case of Myotonia Congenita (Thomsen's Disease) occurring in a man 40 years of age, who had pronounced spasm of the laryngeal muscles and also of the muscles of the arms and hands on performing voluntary movements. The man was well-nourished, free from any abnormality of the nervous system, and muscular, but there was no hypertrophy of the affected muscles as sometimes met with in this type of case. The symptoms were first noticed when he was about 8 years old. His father had been similarly affected. The man has

ten children, all girls, who are normal. The disease occurs less frequently in females than in males.

Mr. D. J. HARRIES showed a Lobulated Fibro-lipo-myxoma, weighing 9 lb., removed from the calf of a woman aged 40.

Prof. A. W. SHEEN showed an encapsulated tumour, weighing 1 lb., removed from the inner side of and behind the knee-joint of a man, where it had existed for eight years, producing some slight inconvenience only. It proved to be a pure myxoma with large numbers of small blood-vessels forming a network in the substance of the growth. Prof. EMRYS-ROBERTS commented on the comparative rarity of a pure myxoma, most tumours of this character resembling the one previously shown by Mr. Harries.

Mr. ALWYN SMITH brought a child 4 months old suffering from Hirschsprung's Disease. He had seen the infant when it was 12 days old; it then presented a large hypertrophied colon, with stretched rectus abdominis and diaphragmatic ligaments, a high barrelled chest, incurved rib-cartilages, and right torticollis, due to posture in utero. The liver and spleen were easily felt, and the thickened colon felt like leather between the fingers. He gave a poor prognosis, forecasting permanent constipation; however, the child had had daily movement of the bowels.

Dr. OWEN RHYS showed radiographs of 14 cases of various types of Hour-glass Stomachs.

Prof. E. EMRYS-ROBERTS and Dr. H. A. HAIG showed: 1. A blood-film and a section of a chloroma of the lower jaw occurring in a boy. 2. A section of an endothelioma of the orbit. 3. A section of a metastatic deposit on the surface of the liver from a case of diffuse combined carcinomatosis and sarcomatosis of the peritoneal cavity of untraceable primary origin. 4. A brain from a woman, aged 52 years, who for some time past had shown symptoms of mental irritability. A sudden attack of vomiting was followed by right-sided hemiplegia, aphasia, and semi-consciousness; she lingered over a month without any alteration of the symptoms. Examination of the brain disclosed a large glio-sarcoma in the left tempero-sphenoidal lobe into which extensive hæmorrhage had occurred, and this in its turn had produced pressure on the fibres of the internal capsule.

BRIGHTON AND SUSSEX MEDICO-CHIRURGICAL SOCIETY.

A MEETING of this society was held on Dec. 7th, Dr. A. J. HUTCHISON presiding.

Dr. E. FARQUHAR BUZZARD gave an address on

Pain and Other Sensory Disturbances in Relation to Diagnosis.

He emphasised the extreme importance of a correct understanding and interpretation of subjective symptoms, and expressed the opinion that without this the early diagnosis of many morbid conditions could not be obtained. Accuracy in eliciting a detailed history from any patient was the chief guide towards determining the nature of a lesion, however effectively physical signs pointed to its localisation. The difficulties getting from a patient a satisfactory description of symptoms such as pain were very great, and the medical man needed as much tact and skill in cross-examination as did a barrister. He was always handicapped by lack of education in all classes of patients, who rarely had been taught to think clearly or were conversant with the use or meaning of the language they spoke. Dr. Buzzard illustrated the importance of accurate descriptions in relation to the various forms of headache, and discussed the possible causes which determined the time and incidence of pain in connexion with the headache due to gross organic disease as well as that due to anxiety states. He pointed out that while the lay mind might be most impressed by the constancy and persistency of headache, the trained medical mind should really pay perhaps more attention to those forms of headache which are transient and paroxysmal. The importance of other sensory disturbances in relation to diagnosis was illustrated specially by reference to the sensory disorders resulting from early patches of disseminated sclerosis, and emphasis was laid on the fact that slight sensory abnormalities, unassociated with any disability or gross objective disturbances of function, are always of organic origin and not hysterical. Such symptoms are often of great diagnostic importance. He referred to the various sensory symptoms characteristic of early stages of tabes dorsalis, and pointed out how diagnosis of that disease could be made when the lightning pains are present even in the absence of Argyll Robertson pupils, absent tendon-jerks, and other well-known features of tabes.

Discussion.

The PRESIDENT asked Dr. Buzzard if he could explain intracranial pressure; how was it that a tumour the size of a pea could cause intense headache, and how was periodicity of headache to be explained?

Mr. ROBERT SANDERSON thought that the lessening of the neurasthenic headache as the day went on was caused not as Dr. Buzzard had suggested by the feeling of relief that the cares of another day were over, but by the strengthening influence of food.

Mr. GEORGE MORGAN quoted the late Sir Lauder Brunton's observations of his own trigeminal neuralgia and his theory of an acid wave.

Dr. E. HOBHOUSE spoke of the early morning headache associated with increased arterial tension. In neurasthenics the headache might be greater in the early morning because at that time they had nothing but their symptoms to think of. It was remarkable how often neurasthenics, re-examined after an interval of six months, gave a different localisation to their headache. He had had a patient, aged 47, in whom the pressure of a cerebral tumour had forced open the frontal suture.

Dr. HELEN BOYLE thought it remarkable that very high blood pressure was associated so frequently with absence of headache. In neurasthenics the pressure usually was low, and she thought the lessening of headache during the day was caused by the circulation brisking up. Hence the benefit of Weir-Mitchell's prescription of early morning black coffee.

Dr. GORDON DILL spoke of the type of intense frontal headache with vomiting, which he attributed to auto-intoxication dependent upon failure of the filtering action of the liver.

Dr. J. A. A. ORLEBAR asked for information as to ætiology of disseminated sclerosis.

Reply.

Dr. BUZZARD replied. He thought Dr. Hobhouse's case most remarkable. Dr. Dill's cases he took to be migraine. As to disseminated sclerosis, it was practically certain the cause was a spirochæte, and treatment most likely to be successful was by arsenic on the same lines as in syphilis.

MIDLAND MEDICAL SOCIETY.

A MEETING of this Society was held in the Medical Institute, Birmingham, on Dec. 6th, Dr. C. E. PURSLOW, the President, being in the chair. About 70 members were present. The evening was devoted to a discussion on the

Scope of Diathermy.

Dr. C. G. TEAL outlined the physiological principles underlying the method, and gave a brief historical sketch of its development.

Dr. A. E. MILNER (Derby) read the paper on the treatment of lupus by the diathermy condenser spark, which appears on p. 1316 of the present issue of THE LANCET.

Mr. MUSGRAVE WOODMAN spoke of the value of diathermy in malignant disease of the mouth and throat. Although the primary seat of the growth

might thus be totally destroyed, it was, however, impossible for diathermy to deal with the lymphatic glands. The method must be employed in conjunction with surgery. He emphasised the danger of secondary hæmorrhage. No doubt with improved technique this and other dangers would be reduced.

Mr. WOODMAN and Dr. TEAL demonstrated diathermy on pieces of meat.

Dr. A. E. CUMBERBATCH (London) acknowledged the excellence of Dr. Milner's results, but pointed out that the sparking of lupus patches, strictly speaking, was not diathermy. He reviewed recent work at St. Bartholomew's Hospital which had shown the possibility of reducing an inoperable carcinoma by diathermy to a state in which operation was possible.

Mr. B. J. WARD drew attention to the value of diathermy in the treatment of papillomatous tumour of the bladder, and showed several excellent pictures.

Sir GILBERT BARLING said he was satisfied that diathermy was a method of value in well-chosen cases. Some of Dr. Milner's results, he thought, might have been obtained by simple surgical operations. In the treatment of papillomata of the bladder diathermy constituted a great advance, as also in nose and throat diseases. He believed, however, that wherever it was possible for an operating surgeon to excise a growth complete with its lymphatic drainage, diathermy was unnecessary.

ABERDEEN MEDICO-CHIRURGICAL SOCIETY.

Exhibition of Cases.

A MEETING of this Society was held on Dec. 7th, when the following cases were shown and discussed:—

Dr. GEDDIE showed a case of a child, aged 15½ months, suffering from osteogenesis imperfecta.

Mr. MITCHELL showed two cases of regeneration of the lower half of the femur after subperiosteal resection for acute septic osteomyelitis, and a case of congenital clubfoot corrected by manipulation, the position being maintained by insertion of a silk ligature from the fifth metatarsal to the anterior border of the tibia.

Prof. ASHLEY MACKINTOSH showed a woman, aged 53, with the appearance of myxœdema, who exhibited some interesting vascular and arthritic features, probably luetic in origin.

Dr. A. GREIG ANDERSON showed: 1. A case of Milroy's disease, aged 22. The onset was at the age of 8 in the left leg after an operation in the groin; the right leg became swollen at the age of 14. 2. A case of lipodystrophia progressiva, showing extreme wasting of the fat of the face and upper part of the body down to the pubes; the legs and buttocks were normally developed.

Mr. WILLIAM ANDERSON showed a case of subcutaneous rupture of the extensor communis digitorum.

Sir H. M. W. GRAY showed a case of tumour of right thigh for diagnosis—query lipoma, also a case of arteriovenous aneurysm of the femoral artery and vein.

Mr. F. K. SMITH showed a case, aged 27, where a tibial bone-graft was used to replace the upper half of a humerus lost over a year previously through osteomyelitis; X rays of various stages were shown, and the result appeared to be very satisfactory. He also showed a case of syphilitic ulceration of a breast in a woman aged 65.

Mr. COLT showed two cases for Prof. Marnoch: (1) Myositis ossificans of the left elbow in a male of 47 who dislocated the joint 11 weeks previously; and (2) sero-cystic disease of the left breast of five years' duration in a woman of 44, who, 25 years before, had been confined, but had no subsequent pregnancy and no dysmenorrhœa; three of the cysts had ruptured during the last five years, discharging serous fluid, latterly blood-stained.

Dr. SANDEMAN showed a case of a young girl with calcinosis.

Dr. CROLL showed a case of mediastino-pericarditis, discussing the value of the various signs thought to indicate this condition.

Dr. INNES showed two cases of dextrocardia, with transposition of viscera; three members of the family—two brothers and one sister—had the same condition. Skiagrams were demonstrated.

ROYAL MEDICO-CHIRURGICAL SOCIETY OF GLASGOW.

MEETINGS of this Society were held on Dec. 1st and 15th, when discussions on the

Present-day Treatment of Fractures

were held.

Mr. J. W. DOWDEN (Edinburgh) spoke particularly of fractures of the upper extremity as capable of treatment by the general practitioner. The use of a sling and active movements were the important factors in the treatment suggested by him. For the first two or three nights not only should a sedative be given; possibly a splint should be used at night to prevent the undue displacement of parts while asleep. The chief onus of the treatment lay on the patient himself, and he should be frequently seen and encouraged to carry out progressive active movements which must go further and further every time so long as severe pain was not induced.

Mr. ARCHIBALD YOUNG referred to the unsatisfactory position to-day as to the treatment of fractures, as far as the general practitioner was concerned, and also in the out-patient department of the larger general hospitals. Mr. Young referred to numerous cases and showed a large selection of X ray photographs supporting his general contention that open operation with direct fixation was the correct treatment in a large number of fractures.

Dr. J. N. MARSHALL (Rothesay) presented the case from the point of view of the general practitioner with special reference to the value of the X rays in diagnosis.

Mr. HENRY RUTHERFURD was not enthusiastically in favour of Mr. Dowden's methods and referred to the influence of the Workmen's Compensation Act in stimulating interest in the treatment of fractures.

On the evening of Dec. 15th several speakers referred to points connected with variations in these methods of treatment, and Dr. W. B. MOIR considered the matter particularly with regard to accident insurance.

ROYAL ACADEMY OF MEDICINE IN IRELAND:

PATHOLOGICAL SECTION.

A MEETING of this section was held on Dec. 8th, Dr. W. D. O'KELLY, the President, being in the chair.

In the absence of Sir William Wheeler, Dr. MILNE HENRY read a paper on Rhabdomyosarcoma of Kidney, after which Prof. O'SULLIVAN demonstrated the specimen.

Dr. MOORHEAD showed three interesting hearts which were demonstrated by Dr. E. C. SMITH. The first was an example of the rare congenital abnormality consisting of an abnormal opening between the aorta and the pulmonary artery, immediately above the sigmoid valves. In addition, there was an aneurysmal dilatation of the beginning of the aorta, a well-marked stricture of the aorta above the opening, and the wall of the aorta and pulmonary artery were not separated, but consisted of a single partition. During life the symptoms were those of aortic regurgitation. The second specimen was an example of extreme fibrosis, the wall of the left ventricle being as thin as tissue paper. The third specimen was an example of combined mitral and tricuspid stenosis.

The PRESIDENT considered the specimens shown of great interest. He had never seen ones like them, although he had once seen a case of tricuspid stenosis, in a girl aged 18, but there was no fibrosis on the left side of the heart.

Dr. ABRAHAMSON said that in the congenital case the coexistence of stenosis and patency was remarkable. It was hard to know how the stenosis was formed, and it would be interesting to work out the mechanism of the whole case.

Prof. O'SULLIVAN said that when sections of the aorta and pulmonary artery were cut, the appearance resembled that of a single artery, divided by a partition instead of two independent vessels.

Dr. O'FARRELL asked whether, when the coronary artery was cut, thrombosis was found.

Dr. SMITH, in replying, said that in this case no local thrombosis was found.

Dr. SYNGE read a paper on Banti's disease, which was discussed by the PRESIDENT, Prof. O'SULLIVAN, Dr. O'FARRELL, and Dr. BOXWELL.

Reviews and Notices of Books.

SURGICAL AND MECHANICAL TREATMENT OF PERIPHERAL NERVES.

By BYRON STOOKEY, A.M., M.D., Associate in Neurology, Columbia University; Assistant Surgeon, New York Neurological Institute. London and Philadelphia: W. B. Saunders Company. 1922. Pp. 475. 48*s*.

Dr. Byron Stookey was amongst the earlier contributors to the literature on the peripheral nerve surgery of the war as the result of his British experiences whilst attached to the Special Military Surgical Centre at Liverpool during 1915–16. Later on he was included in the small group of American surgeons officially assigned to deal with the peripheral nerve injuries segregated in special hospitals in the United States, and his position on the surgical staff of the New York Neurological Institute, a hospital which is in many ways the counterpart of our National Hospital for Epilepsy and Diseases of the Nervous System, has given him ample opportunity of extending his experience of these injuries. Endowed with such preliminary advantages Dr. Stookey has produced a monograph which should meet with universal approval.

Throughout the whole work the fundamental anatomical and physiological considerations are kept well to the fore, with the result that the author is enabled to deal judiciously with controversial matters. Prof. Carl Huber, whose earlier histological studies on nerve degeneration and regeneration are classical, has contributed a chapter embodying his more recent and elaborate investigations on this subject, together with a critical review of contemporary work. This section of the book will be of great value to future investigators in this field. In the section dealing with the operative repair of the various types of nerve injury Dr. Stookey sounds a conservative note—an attitude much to be commended. The illustrations include, in addition to those specially prepared for Dr. Stookey, many striking dissections of the internal anatomy of nerve trunks prepared by Borchardt.

TISSUE CULTURE.

Praktikum der Gewebepflege der Explantation besonders der Gewebezüchtung. By Dr. RHODA ERDMANN. Berlin: Springer. 1922. Pp. 117.

THIS handbook for a practical course in tissue culture is based on the experience of the author in the last two years at Berlin University. It arrives at an opportune time, since the recent development of the work has fascinated many workers who lack the detailed knowledge of technique required for its proper practice. Arranged in 31 exercises, Dr. Erdmann's little book is much more than a bald description of the variations and details of a difficult and laborious technique. The principal achievements in tissue culture are discussed critically, emphasis being laid on their biological significance. In addition, directions are given for repetition of the classical experiments, the original illustrations of the various authors being reproduced in 101 clear text-figures. The exercises are grouped in chapters to illustrate the changes in the form of cells in various media, vital activities, evidence of real growth and the course of progressive and regressive processes. A final chapter on the utilisation of the method in the solution of biological problems deals with the application of the method to the cancer problem, immunity, and the culture of ultra-microscopic viruses. Throughout Dr. Erdmann cautions her readers against the danger of regarding tissue culture as a universal method likely to solve all problems. The necessity for fundamental improvements in the culture-media is repeatedly emphasised and the present limitations are recognised as temporary inconveniences of the stage of development of the technique.

The well-selected series of references and the numerous illustrations make the brochure a convenient condensed guide and introduction to a fascinating branch of experimental biology.

TYPHUS FEVER.

With Special Reference to the Russian Epidemics. By J. M. MITCHELL, I. N. ASHESHOV, and G. P. N. RICHARDSON. London: Baillière, Tindall and Cox. 1922. Pp. 48. 3*s*. 6*d*.

AN attempt has been made in this little handbook to discuss the relationship of typhus fever to the present unsettled conditions in Eastern Europe. The authors were attached to Denikin's ill-fated volunteer army, and in a few words we are given a picture of the conditions which prevailed in the territory occupied by this unhappy force. The clinical picture of the disease, as depicted by Dr. Mitchell, appears to be adequate and accurate and will be appreciated by busy practitioners. As regards treatment, interest will be focused upon the specific serotherapy initiated and practised by Dr. Asheshov. The terminal chapter of the book is devoted to a detailed description of the collection of the blood and the preparation of the serum; this is obtained from the patient during convalescence, and when injected in doses of 20 to 50 c.cm. it is claimed that it mitigates, though it does not shorten, the course of the disease. For preventive inoculation "inactivated blood," as originally proposed by Hamdi, a Turkish physician, was employed. The defibrinated blood is inactivated at 56°–58° C. for 30 minutes and is inoculated in 1 c.cm., 2 c.cm., and 5 c.cm. doses at intervals of four to five days. This inoculation is said to be comparable to a vaccine, and it is claimed that a very decided protection against typhus is obtained by its use.

The issue of this handbook, containing a résumé of the more recent advances on a difficult subject, is welcome and opportune.

A HANDBOOK OF AURAL SURGERY.

For Students and Practitioners. By WILLIAM WILSON, M.D., B.Sc., Surgeon to St. John's Hospital for the Ear, Manchester. Manchester: Sherratt and Hughes. 1922. Pp. 336. 15*s*.

Dr. Wilson has provided a text-book of medium size intended for students and practitioners and purposely arranged for ready reference; from this point of view it is unfortunate that the pages throughout are headed "Aural Surgery," instead of bearing a reference to the chapters or to the subjects under discussion; the short marginal comments in heavy type are a feature of the book and are a help in finding the required subject.

In the construction of a small text-book, to be suitable equally for students and practitioners, it is even more difficult to decide what to leave out than

what to put in, and Dr. Wilson has not escaped errors in this respect. For example, he describes and illustrates the technique of no fewer than five methods of operating on the labyrinth, although such knowledge is useless to the practitioner or to the general student, and the description is too condensed to be of much value to the surgeon who has to perform such an operation. There is a full, but somewhat involved, account of labyrinthine reactions and of the symptoms of labyrinthine disease, which is justified by the interest aroused by Bárány's work; but on the whole less space might well have been devoted to such abstruse matters, and more to clear clinical pictures of the commoner affections. The book shows evidence of having been written largely from personal experience, giving a dogmatic tone to the writing. The author appears to favour the so-called "conservative" mastoid operation, though it is not clear for what cases he prefers it to the radical mastoid operation; it is a question on which opinion has not yet finally crystallised, and Dr. Wilson opens the subject by saying that "the student should remember that the opinions expressed in this chapter may be somewhat in advance of the opinions of some examiners." The words seem to imply that to differ is necessarily to be in advance. There are many typographical errors, most of which have been corrected by inserted slips, and in general the book would have been the better for more revision.

LABORATORY METHODS IN CLINICAL DIAGNOSIS.

A Manual of Clinical Diagnosis, by Means of Laboratory Methods. Tenth edition, enlarged and thoroughly revised. By C. E. SIMON. London: Henry Kimpton. 1922. With 23 plates and 233 text-figures. Pp. 1125. 42*s*.

FIRST published 26 years ago, this well-known book has now reached its tenth edition, which is 273 pages longer than the ninth and has been to a considerable extent re-written. It has long since proved its value as a guide for the clinical laboratory, and in its most recent form will continue its usefulness in indicating the right application of all the modern methods of diagnosis. The section which chiefly distinguishes it from other works in the same field is that on parasitology, which is particularly full, and the last 277 pages contain a convenient account of the essential factors in the laboratory diagnosis of various diseases arranged alphabetically. Any expert will probably find imperfections in the chapter dealing with his own pet specialty; it would be remarkable if these were absent in a book covering so wide a range of theory and practice. It is commonly reported in our own country that the cult of clinical pathology has reached a far higher state of development in America than with us; but there is a curious familiarity about the author's comments on the situation in the preface.

> "In the medical schools courses in 'clinical microscopy' are now given almost everywhere .... The medical student acquires merely a superficial technical knowledge of the subject and learns little or nothing concerning the application of laboratory findings to diagnosis. Only too often the clinician and the clinical pathologist are strangers to each other, or the clinician looks on the clinical pathologist as one who has and in his estimation should have no voice in matters pertaining to the welfare of his patient. Hence the young medical man starts upon his career with an erroneous idea of what the clinical laboratory should stand for and actually does stand for in a really modern hospital."

Coming as they do from one of the pioneers of clinical pathology in the United States, these remarks suggest that there is not so very much difference in essentials between the two countries. There, as here, the clinician frequently tends to treat the clinical pathologist as a servant rather than a colleague; both parties fail to get the best from one another, and on these terms always will fail, the patient being the loser. One of the troubles as regards the student arises from the attempt to teach a clinical subject by formal classes in the laboratory instead of by actual daily practical work in the wards—a mistake committed much more extensively in America than in England. If students are to gain any proper sense of the everyday utility of laboratory methods, they will do so only if they see them being used in actual practice, and affording evidence of neither greater nor less validity and certainty than can be obtained by clinical examination.

SOUTH SEA REMINISCENCES.

By T. R. ST.-JOHNSTON, Colonial Secretary of the Leeward Islands; formerly District Commissioner in Fiji. London: T. Fisher Unwin, Ltd. 1922. Pp. 213. 16*s*.

Lieut.-Colonel T. R. St.-Johnston is well known to our readers as the author of that excellent book "The Islanders of the Pacific," reviewed in THE LANCET of April 2nd, 1921. The work now before us is of a lighter character, being a collection of reminiscences of some 20 years spent in the South Seas in sundry official capacities. His first post was at Suva in Viti Levu, one of the Fijian Islands, where he was medical officer. Under his charge amongst other matters was a rather Gilbertian prison. In those days it had only three sides to it and when the fourth was built the prisoners were much annoyed, not because they could no longer wander out as they liked, but because when they had gone out, they could be locked out and so prevented from coming back. No wonder that the natives did not refer to being in prison as a punishment or any disgrace, but always mentioned that they had been in "Government service." The book is full of good stories, and the chapter on How the Fijians Went to War, deals with by no means the least interesting episode of the modern cataclysm. Colonel St.-Johnston has a keen eye for beautiful things, and his description of the natural aquarium makes the reader long for a sight of such exquisite "common objects of the sea-shore" and the shallow waters containing them. The book ends with a sigh of regret for what he left behind him when he departed for Antigua.

TWO VOLUMES OF POEMS BY MEDICAL MEN.

Passing Songs. By WILLIAM BARR. London: Grant Richards. 1922. Pp. 58. 5*s*.

Dr. William Barr, tuberculosis officer at Rotherham, is a delicate observer of facts, moods, and emotions, and is able to record his observations in verse which never falls to mere rhyming and not infrequently rises to real poetry. He has also the gift of dealing suggestively with a large subject in a few lines—witness such short poems as "Neighbours" or "Alchemy." We congratulate Dr. Barr upon what he modestly calls "passing songs."

Poems. 1920–1921. By K. W. MONSARRAT. London: John Murray. 1922. Pp. 68. 3*s*. 6*d*.

Mr. Monsarrat is surgeon to the Northern Hospital and lectures on clinical surgery at the University of Liverpool. The publisher's notice describes his poems as studies in human sentiment, but does not indicate that they are studies made with the sure touch of one who is familiar with the springs of action. The minute beauties of living things are well brought out in a number of poems. In most the verse is free, but in "Fortune" and "To a Garden" the author shows his mastery of more formal metre. The keynote throughout is contentment bred of sympathetic knowledge.

> "The waste is gracious, blossom springs from dearth,
> The hearts of men give loveliness to earth."

PRACTICAL CHEMICAL PHYSIOLOGY.

By W. W. TAYLOR, M.A., D.Sc., Lecturer in Chemical Physiology at the University of Edinburgh. London: Edward Arnold. 1922. Pp. 71. 4*s*. 6*d*. (5*s*. interleaved).

THIS little book, intended for medical students, has the merit of brevity and cheapness; apart from these we can see in it no features which place it in front of other books dealing with the same subject. There is no theoretical matter, which is in some ways an

advantage. Some of the quantitative methods given are by no means ideal for students' use; this applies especially to methods for estimation of ammonia, urea, and total nitrogen by the aeration method. Few laboratories have a supply of compressed air, and many have not proper accommodation for the use of filter pumps for each working place, so that these methods could not be used. As regards the urea estimation the substitution of the urease method for the simple and almost universal hypobromite method is, in our opinion, a grave error of judgment, where junior medical students have to be taught. Every author of a students' book on chemical physiology or chemical pathology seems impelled, to the point of bedevilment at times, to give a method for sugar estimation which differs from those given elsewhere, bears the name of its introducer, and yet is only after all a modification of the copper reduction method. The present author gives his support to the Folin-McEllroy method, and does not even mention the Fehling reagent except in the appendix. Benedict's solution, which seems to do just the same as the Folin-McEllroy mixture, is also relegated to the appendix, with, in the circumstances, the somewhat naïve introduction that it "is in common use instead of the Folin-McEllroy reagent." Barfoed's reagent, though in frequent use, is not mentioned.

A TEXT-BOOK OF ORGANIC CHEMISTRY.

By JOSEPH SCUDDER CHAMBERLAIN, Ph.D., Professor of Organic Chemistry, Massachusetts Agricultural College. London: George Routledge and Sons, Ltd. 1922. Pp. 959. 16*s*.

IT has been the author's endeavour to present the subject of organic chemistry in an elementary manner and at the same time to make the book comprehensive. Details of properties and methods of preparation of individual compounds have not been unduly emphasised. The method of treatment is in the lecture style. In a subsequent edition the author should correct the statement that maltose is found in malt. This sugar does not occur in malt as such but only after digestion with water.

The book is clearly written in an engaging style.

RESEARCH STUDIES IN MEDICAL HISTORY.

1: De Arte Phisicali et de Cirurgia of Master John Arderne, Surgeon of Newark, 1412. Translated by Sir D'ARCY POWER, K.B.E., M.B. Oxon., F.R.C.S., from transcript made by ERIC MILLAR, M.A. Oxon., from the replica of the Stockholm Manuscript in the Wellcome Museum. London: John Bale, Sons and Danielsson, Ltd. 1922. Pp. 60. 10*s*. 6*d*.

Sir D'Arcy Power is well known as an ardent admirer of Arderne, and the best version of the Treatises on Fistula in Ano and in other parts of the body is that edited by him for the Early English Text Society, Original Series, No. 139 (1910). He has now given us another instalment of Arderne's works, which is not an original work of Arderne but an epitome of various treatises by him together with the birth figures and instructions for midwives by Muscio, who in turn took most of his matter from Soranus of Ephesus. The original MS. is in the Royal Library at Stockholm, and the photographic replica from which Sir D'Arcy Power has made his translation is in the Wellcome Historical Medical Museum. The coloured illustration of Arderne is from a fifteenth-century MS. of Arderne's treatise on fistula in the British Museum, Sloane MS. 2002. There are two illustrations in this MS. of Arderne, the one showing him operating with a portion of the patient—i.e., the legs, the buttocks, the lumbar region, and the face—and the other almost the same, but the whole of the patient except the opening of the fistula has been eliminated. The designer must have had a proleptic vision of Alice, who said after her first interview with the Cheshire Cat, "Well, I've often seen a cat without a grin, but a grin without a cat! It's the most curious thing I ever saw in all my life." All medical men have seen a patient without a fistula, but a fistula without a patient! The MS. contains a number of prescriptions for all sorts of diseases both surgical and medical, and the treatment is, as is only natural, more sound in the surgery than in medicine. There are some delightful illustrations of the various affections and diseases, some of which are really masterly—e.g., the one of a man shouting to a deaf friend (Plate IV., Fig. 4, left column), where the bewildered look on the deaf man's face is admirably rendered.

Mr. H. S. Wellcome may be warmly congratulated upon the first of the series which he intends to publish, and the book reflects high credit upon all responsible for its production.

JOURNALS.

BRITISH JOURNAL OF CHILDREN'S DISEASES. Vol. XIX. October–December. Edited by J. D. ROLLESTON, M.D.—Dr. W. M. Feldman contributes a paper on Prenatal Hygiene and Problems of Maternity and Child Welfare, in which his conclusions are as follows: 1. Prenuptial clinics should be established where persons of both sexes can get expert advice as to their fitness to marry. 2. No person knowingly suffering from syphilis should be allowed to marry, and breach of such a rule should be made a penal offence. 3. Every person who at any time has exposed himself to the risk of contagion by venereal disease should be declared free from both syphilis and gonorrhœa before marriage. 4. All cases of prenatal syphilis should be thoroughly supervised and treated as soon as diagnosed. 5. All expectant mothers should, as far as possible, refrain from alcohol (at any rate in excess) or excessive smoking throughout pregnancy. 6. All expectant mothers should be protected from exposure to infectious disease or dangerous industries such as lead and phosphorus or tobacco factories. 7. Attention to the teeth, bowel, and kidney functions is of great importance during pregnancy. 8. Careful watch should be kept of the relative size of fœtus and maternal pelvis, and any abnormal presentation should be converted into a vertex before labour. 9. Antenatal wards or beds should be provided in connexion with all antenatal clinics for the purpose of treating abnormalities of pregnancy, as well as for the purpose of carrying out properly directed and well-coördinated biochemical, pathological, and statistical research.—In the third and concluding part of their paper on the Severe Blood Diseases of Childhood: A Series of Observations from the Hospital for Sick Children, Great Ormond-street, Dr. F. J. Poynton, Dr. Hugh Thursfield, and Dr. Donald Paterson discuss the different varieties of purpura, of which they record illustrative cases, and the general principles of severe anæmias in childhood.—Dr. E. Cautley writes on the Pel-Ebstein Type of Hodgkin's Disease, of which he reports a fatal case in a girl aged 8, which was characterised by a prolonged local stage of glandular hyperplasia in the neck and a generalised stage of pyrexia of a relapsing type, severe and progressive anæmia, a yellowish-grey tint of the skin, enlargement of the cervical glands, liver, and spleen, slight bronchitic attacks with breathlessness, occasional semi-delirium, erythropenia, and leucopenia. There was no evidence of tuberculosis and the Pirquet reaction was negative, but no autopsy was obtained.—Dr. C. F. T. East reports a fatal case of Cerebral Hæmorrhage in a New-born Child, associated with patches of purpura on the legs, arm, and scapula, as well as retinal hæmorrhages and free bleeding from a small scratch on the face. In addition to scattered hæmorrhages on the lungs and visceral pericardium, the autopsy showed fluid blood and clots all over the surface of the brain. There was no history of any hæmorrhagic tendency in the family. Although there was no evidence of infection, the case was classified as one of hæmorrhage due to changes in the blood or capillary walls, possibly as the result of infection or toxins.—The abstracts from current literature are devoted to diseases of nutrition and syphilis. The index which is attached to this issue should prove a useful guide to recent pædiatric literature.

THE LANCET.

LONDON: SATURDAY, DECEMBER 23, 1922.

Sight-Testing Opticians.

PROBABLY a majority of those who wear glasses have never had their eyes examined by a qualified medical man, but have trusted to the prescribing optician or to their own ability to select glasses which help their sight. A proportion of them at some time or another, realising or suspecting that their glasses are not quite right, find their way to the out-patient department of an ophthalmic hospital, and a few of them to the consulting-room of an ophthalmic surgeon. Many do neither, and it is a question not very easy to answer how far the sight-testing optician does, in fact, play a useful part in the interests of the public, and, further, whether his position ought to be regularised by the institution of a legalised test which all members of what might then fairly be called the sight-testing profession should be required to pass. A large number of opticians, represented by the British Optical Association, with a journal entitled the *Optician and Scientific Instrument Maker*, have for long insistently pressed such a demand. In another column we publish the objections to it urged by the Council of British Ophthalmologists. These are mainly three. In the first place all refraction work in children, and much of it in adults, is best done with the aid of a mydriatic drug, and these drugs cannot be safely employed except by a doctor. Secondly, the prescribing of glasses is in many cases by no means a purely optical matter. In the case of children, of myopes, and of those with slight degrees of astigmatism, other considerations besides the actual improvement of visual acuity come in—considerations which have to do with the preservation of sight in the future, or with the nervous constitution of the patient. Thirdly, even in the case of what may be called purely optical conditions—simple hypermetropia in an adult, gross astigmatism, or ordinary presbyopia, there is a certain advantage in consulting a man who may be relied on to detect any signs which may be present in the fundus pointing to some general disease, or a tendency towards it, to diagnose correctly in cases of early glaucoma, and to recognise various other conditions of the eye which may or may not be pathological.

Presumably none of this will be disputed by the optician. His answer is that he himself is, or at any rate ought to be, quite capable of using mydriatics with discretion, that he is quite as capable of judging when the correction of astigmatism is required on account of headache, as is the ordinary medical man, and that with regard to abnormal conditions such as early glaucoma, cataract, or fundus disease, his training is or should be sufficient to enable him to decide whether or not such conditions are present. If absent, he has nothing to do but to go ahead and prescribe glasses himself; if present, it is his duty to refer his client to an ophthalmic specialist. That this is actually the position taken up is shown by reference to the columns of the opticians' journal, in which a medical man wrote[1] not long ago:—

> "And thus, in addition to a competence in sight-testing, that knowledge must also be acquired which alone can ensure an opinion upon the healthiness of an eye, so as to discharge in full your liabilities to the community and admit of your approaching public bodies with an offer to undertake their refractive work. . . No purpose will be served by continuing that self-imposed embargo on the use of a mydriatic which is enforced by the limitations of your optical education and which has placed outside your sphere young children and those whose ciliary muscles refuse to relax before the methods of fogging you now employ. . . A legislative enactment, which sanctioned merely your present status with its existing limitations, would circumscribe your legitimate activities by placing permanently outside your sphere a section of the community, and so would make your position in sight-testing subordinate to that of another whose real concern is not sight-testing but disease."

[1] Optician, Dec. 26th, 1919.

And he goes on to what is the logical conclusion of his argument, which is to advocate—

> "the foundation in a poor and populous district of London of a charitable institution for the treatment of defective sight, which will be conducted under your own auspices. . . . The teaching staff would draw its recompense from the fees of students, and I have little doubt that the institution would rapidly become more or less self-supporting."

In a more recent lecture given at the annual meeting of the National Association of Opticians—this time not by a medical man—on Diseases of the Eye which Opticians Should be Able to Recognise, the subjects dealt with included the symptoms of various forms of conjunctivitis, of iritis, glaucoma, cataract, and numerous other diseases.

It comes to this, then, that a body of men whose technical training is calculated to fit them thoroughly to understand the manufacture of all varieties of spectacle lenses and the proper fitting of all varieties of eye-glass and spectacle-frames, finding in these by no means easy attainments an insufficient scope for their energy and ambition, propose to demand recognition from the State, as a body of men not only competent to make spectacles, but also to prescribe them, and for this purpose they propose to establish courses of instruction not only in the refraction of the eye, but in the recognition of all the diseases to which the eye is liable. It is true that at present they qualify their proposal by explaining that all they would be called on to do in the way of diagnosis would be to distinguish the normal from the diseased eye. A very limited experience would show that this is by no means the simple matter that it sounds. On the one hand, some of the most striking abnormalities of the fundus, such as opaque nerve fibres, are not a sign of disease. On the other hand, certain most serious diseases in their early stages are evidenced by changes which it needs very special skill to detect—we may give glaucoma for one instance and macular degeneration for another. The fact is that in the diagnosis and treatment of ocular disease a little knowledge may be a very dangerous thing. No doubt, at present, the opticians disclaim any desire to encroach on the province of treatment except in so far as the prescription of glasses is concerned. Since, however, a correct diagnosis is the most essential part of the ophthalmic surgeon's work, it is not easy to see why the opticians should stop short at that.

The final decision will lie with public opinion. We do not believe that, when the facts are fairly put forward, the public will support the demand of the opticians to be recognised as a body of eye specialists. A large proportion of presbyopes will probably continue to go for spectacles straight to the optician's shop, and in truth we see no great harm in this provided that the optician does not pose as an eye specialist. Those with more complicated errors of refraction will, no doubt, go to those who they judge from the experience of their friends and acquaintances are most likely to satisfy their requirements. There are many general practitioners who have so far

specialised in the eye as to make them quite capable of dealing with these cases, and we trust that in the future there will be more. It depends, we believe, on the medical profession itself whether or not sight-testing opticians obtain influential support from the public in their demands. If no general practitioner undertakes refractive work unless he has given the necessary time and trouble to achieve competence, and if ophthalmic surgeons on their part are sympathetic towards the difficulties of middle-class patients who have not yet acquired the hospital habit but cannot afford the full consulting fee—given these conditions, we are not much afraid that the attempt on the part of the sight-testing opticians to constitute themselves into a close corporation of non-medical specialists on the eye will be anything but a failure.

Experimental Rickets.

THE Medical Research Council has recently published two important reports on the causation of rickets. We noticed last week (p. 1289) the work of Dr. H. C. MANN on the sanitary circumstances which account for the occurrence of the disease among the children in South London, and we have now a report[1] on the ætiology and pathology of rickets from the experimental point of view by Dr. V. KORENCHEVSKY, formerly professor of experimental pathology in the Military Medical Academy at Petrograd, who has been conducting his inquiries under the auspices of the Council at the Lister Institute. The two reports are complementary to one another, for while Dr. MANN is concerned with the question of what actually *does* cause rickets in his particular neighbourhood, Prof. KORENCHEVSKY deals with the problem of what *can* cause rickets under experimental conditions. It would have made for clearness of discussion and the progress of knowledge if it had always been recognised that the two questions are distinct, and that the demonstration that a certain cause has a certain effect does not necessarily carry with it the conclusion that in the working world the effect is in fact due to that particular cause.

Prof. KORENCHEVSKY'S work has involved a very extensive series of experiments on rats living under carefully controlled conditions and on diets of various kinds, and he gives a mass of detailed histological and chemical analyses of the results obtained. And no less valuable is his critical summary of the writings of other workers in the same field; in this he surveys some 400 investigations, good, bad, and indifferent, which bear on his own observations. We would commend his admirable fabric of literature and experiment to the notice of those who, in the current fashion, think that research work involves no obligation to be acquainted with what is already known on the subject. We welcome, too, another reminder of the classical tradition that the author has brought with him from Russia—that there is no easy road to knowledge and that serious contributions to progress will generally make pretty stiff reading. Conveniently, however, for the hurried student each section is shortly summarised in a way which will suffice for those who are content to know the author's conclusions without any detailed examination of his reasons for them. On the question of dietary factors, with which his own experiments are mainly concerned, Prof. KORENCHEVSKY'S conclusions amount to this. A moderate deficiency of calcium can by itself produce osteoporosis which, on clinical, chemical, and morphological grounds, cannot be sharply separated from mild or atrophic rickets, and, if there is a simultaneous defect in the supply of the antirachitic factor which is abundant in cod-liver oil, frank rickets ensues. If the deficiency is so great as to amount to almost complete absence of calcium, definite severe rickets results which cannot be prevented by cod-liver oil, and similarly absence of or grave defect in the antirachitic vitamin produces rickets on a diet containing an adequate supply of calcium. From which it follows that the antirachitic factor operates by influencing the capacity of the animal to assimilate calcium, and that the quantity which is necessary to prevent rickets is proportional to the amount by which the supply of calcium falls short of the optimum. A realisation of these quantitative inter-relationships will go far in clearing up apparent discrepancies of experiment and experience. The conception of "limiting factors" in complex ætiological relationships wants more consideration than it has received. The "limiting factor" in the normal growth of bone may, under one set of circumstances, be calcium and under another vitamin. Experiments show the importance of the mother's diet. It is now recognised that rickets is most liable to begin in the first months of life, possibly sometimes before birth, and adequate amounts of antirachitic factor, calcium, and phosphorus are necessary for the mother during pregnancy and especially during lactation for her own sake as well as the child's. Of factors other than dietetic, the author treats more briefly. His experiments on the infective hypothesis and on the influence of a moist confined atmosphere led to negative results, and in the ætiological (as distinct from the therapeutic) significance of ultraviolet light he is not prepared to go further than to admit the "possible importance" of its absence. Investigations published on p. 1318 to p. 1324 of our present issue, however, suggest that light may act as an economiser of the growth-promoting factor, possibly identical with the antirachitic factor. Prof. KORENCHEVSKY and Dr. MANN both produce some evidence suggestive of a hereditary diathesis for rickets.

If this is the substance of controlled and simplified experiment in the laboratory, it is small wonder that there is some difficulty in getting clean-cut results in working-class houses in Southwark or Glasgow or Vienna. It may well prove a hard task to identify the respective shares of vitamin, calcium, phosphorus, light, and possibly muscular exercise and heredity in bringing a child to hospital, still harder to name the particular cause in each example of deteriorated well-being and vigour which falls short of definite disease. Hygiene and therapeutics are, however, fortunately prepared to deal with more than one variable at a time and, by keeping all the factors far from their possible limiting values, to secure an effective control of the English disease.

[1] Special Report Series, No. 71. H.M. Stationery Office. 1922. 4s. net.

The Public Health Medical Service.

WE reported last week the fact that the principal officials of the St. Helens municipality are under three months' notice to end their service, the situation having arisen out of a unanimous refusal to accept certain reductions proposed by a Labour majority on the town council. Our comment upon the situation included the details of some of the salaries in question, giving the figures for 1914, the figures for 1922, and the figures which it is proposed

that the officials should accept; and we may say that the reductions appear to be practically on the same scale, whether the medical administration is in question, or whether the economy is directed towards the payment of the town clerk, the borough treasurer, or the borough and electrical engineers. The medical officer of health and the deputy medical officer of health are actually affected as follows:—the senior officer was appointed in July, 1921, at a salary of £900, rising by £50 a year to £1000, and the deputy medical officer was appointed in October, 1921, at a salary of £700; by the resolution it is proposed to reduce the salary of the senior officer to £750 and of his deputy to £550. All the officials refused to accept the proposed reductions, preferring to terminate their engagements upon expiry of the notices at the close of February next. After this the St. Helens borough council received a deputation from the National Association of Local Government Officers, the Society of Medical Officers of Health, and the British Medical Association to discuss the situation. The interview, which appears to have been between the deputation and the Labour members of the council, resulted in nothing save the suspension for a month of the notices, which now become operative on March 1st, 1923. An offer of the deputation to submit the matter to arbitration, if the notices were withdrawn, was not accepted.

Apart from the anxious position in which skilled and responsible officials, against whose discharge of their duties no one dare say a syllable, have been placed, it is perhaps good that the questions involved should thus be brought to the front in a dramatic manner. Speaking now only of the medical officials, it has long been clear to the medical profession in this country that the public health medical service is underpaid; and for this reason representatives of the British Medical Association, in conference with the Society of Medical Officers of Health, have arrived at a scale of remuneration where justice is aimed at by fixing minimum salaries according to the grade of the officers. Those minimum salaries are not only, as might be expected, in excess of the salaries which the St. Helens borough council now proposes should be paid, but they are also in excess of the salaries at present enjoyed by the medical officer and deputy medical officer of St. Helens. The position therefore is that should either of these medical and administrative posts become vacant at St. Helens, it will be difficult for the borough council to obtain medical officers. The vacancies will have been caused by refusal to accept drastic and unprovided-for reduction in the salaries, while the salaries, even unreduced, may not be offered in the future without challenge. It is quite well that the community of St. Helens should understand the position to which the majority in the borough council has committed it. If the present officials leave—as it may be confidently expected that they will, after treatment of the kind set out above—the borough will obtain no candidates for the posts at the reduced figures who possess the necessary qualification for the work.

We are perfectly aware that the medical profession is not entirely solid in its endorsement of all the claims of the Society of Medical Officers of Health for its members, and this we think is mainly because the Society appears to rely for the justice of its cause upon the weakest of the grounds—namely, that the medical officers of health should be better paid because the panel practitioners may make more money. The prominence of this argument does wrong both to the Society and the officers represented. The remuneration for a panel of 3000 is not the average income of the insurance practitioner, but the maximum, and while the bloated panel is already the exception rather than the rule, the feeling on all sides is that the numbers of patients seen by individual doctors should still further decline. In the London area, if the insured persons were equally distributed, there would only be 1000 for each practitioner; the nearer this figure is to the average for the whole country the less applicable is the comparison of the remuneration of the financial positions of the medical officer of health and the panel practitioner. The average remuneration, including mileage payments, of the panel practitioner is estimated by the Ministry of Health at less than £500 a year.

Health of Missionaries.

WE have received from the Association of Medical Officers of Missionary Societies (1, Farnley-road, London, E. 4) the third edition of a pamphlet containing health instructions for missionaries in the tropics, with a section on emergency treatment by Dr. G. Basil Price and Sir Leonard Rogers. The rules have not been drawn up with any idea of coddling the missionary or leading to morbid introspection, but in the belief that the application of "sanctified common sense" may contribute to the efficiency of the missionary's life and work, and the happiness and well-being of himself and his family. The special warnings include precaution against mosquitoes and other stinging insects, proper attention to vaccination, and anti-typhoid inoculation, preservation of the teeth, and hints on hygiene and outfit, with a useful paragraph on habits. Emergency treatment is dealt with under the headings of malaria, blackwater fever, dysentery, and cholera. At the same time the annual report of the Livingstone College (Leyton, London, E. 10) reaches us. This college was incorporated in 1900 with a view to giving instruction and practical experience to intending missionaries so that they might learn to treat with confidence and intelligence the bodily troubles from which they and their charges were likely to suffer. Many a worker, it is admitted in this report, breaks down in health soon after reaching his destination, often for lack of requisite knowledge of the climate and of the best way to meet new conditions of life.

The need for some such instruction is evident from a recent study made by Dr. William G. Lennox, of the Peking Union Medical College, regarding the health of missionary families in China. Dr. Lennox began his studies with an inquiry whether missionaries were taking their full share of the responsibilities of parenthood. The answer was in the affirmative, the percentage of infertility being noticeably small in a group in which both parents were free from venereal disease. He found an infantile death-rate of 60 for China missionaries as compared with 156 among the natives with whom they lived. So far so well, but more than 39 per cent. of these deaths occurred in the latter half of the first year, when the infant's expectation of life is normally good, the upward turn in the death-rate being due to intestinal infections—namely, dysentery, infectious diarrhœa, cholera, and typhoid. After infancy too the death-rate among missionaries' children was unduly high; during the second year being more than double, and during the third, fourth, and fifth years, treble, that of a rural district in England. Large families had a higher infectious rate than small ones, pointing to poor quarantine within the home. Dr. Lennox found, however, that where the parents had had medical training the general infectious diseases were lower, education of the mother in home sanitation appearing to be of special value. These things are a complete justification of such an institution as Livingstone College. The difficulties in the North China stations are notorious, but much of the loss of life might be avoided by intelligent vigilance on the part of the individual and a larger coöperative health programme on the part of the missionary body.

Annotations.

"Ne quid nimis."

A CHRISTMAS APPEAL FOR RUSSIAN DOCTORS.

THE Council of the British Medical Association, at its meeting on Dec. 13th, resolved to make a Christmas appeal to the medical profession in this country to do something more in order to alleviate the deplorable conditions under which our medical colleagues in Russia are striving to exist. The results of the appeal will be divided between the American Relief Administration and the All-British Appeal of the Nansen High Commission, each of which bodies may be relied upon to see that money subscribed by the British medical profession is spent to the best advantage in provision of the necessities of life to Russian doctors and their families. It will be remembered that in June last the Council made a similar appeal, limiting the subscription to 5*s.* in order that the response should be as widespread as possible. Within the next few weeks the sum of £1610 was received and was paid over to the American Relief Administration, which promptly despatched food parcels to doctors and members of deceased doctors' families whose names had been supplied by an organisation of Russian medical men in this country. The Association had a signed receipt from Russia for every parcel delivered. Since that time many moving letters have been received from individual doctors and from professional bodies in Russia, expressing gratitude not only for the gift but for the evidence that the recipients were not forgotten by their more fortunate colleagues in other parts of the world. It is common knowledge that the salaries now paid to many medical men in Russia are entirely inadequate for their support and that of their families, being far less than the wages of manual workers. In a letter addressed to the Association, dated Moscow, Sept. 24th, Mr. W. E. Haigh, F.R.C.S., who is attached to the Nansen High Commission, writes as follows:—

"I pay my chauffeur 100 millions (of roubles) a month and food packets; doctors working in the cholera blocks of the Odessa city hospitals receive 27 millions and, happily, have gifts of maize from the A.R.A., but pay is always in arrears. There are doctors in the country who have had no pay this year and depend on small gifts from the peasants, but this in famine-stricken areas cannot be much. The doctors in Cherson, on the Black Sea, have had no pay for six months, and their lot is desperate. . . . The sole means of keeping doctors and nurses alive was the American maize. . . . I know those (doctors) who have had their children at home with œdema, living on surrogates, those who have eaten linseed cattle cake instead of bread, or the pressed mass after the extraction of oil from sunflower seeds; some have died on duty, and typhus has taken fresh toll, and for their wives and children there is nothing. The best off financially are poor and their means are often the sales of books, silver, the furs, clothing, and jewellery of their wives, and these reserves are now exhausted. . . . . All forms of help can now be administered best through the local medical societies; if we find the food they know the needs best."

In the latest report of the A.R.A. (December, 1922) it is stated that while the need of foodstuffs continues to be a grave problem, the needs of the population for warm clothing are equally grave. The A.R.A. has entered into an agreement with the Soviet Government to allow clothing remittances to be made to individuals. The appeal is signed by Sir William Macewen and Drs. R. Wallace Henry, R. A. Bolam, and G. E. Haslip. It would be superfluous, in the light of known facts and at this season of the year, to commend the fund to our readers. Subscriptions of 5*s.* or multiples of 5*s.* should be sent to Mr. L. Ferris Scott, the Financial Secretary of the Association, at 429, Strand, London, W.C. 2, who will acknowledge their receipt. The amount collected will be acknowledged week by week in the *British Medical Journal*; the names of individual subscribers will not be stated.

TUBERCULOSIS IN THE SUDAN.

IN the Sudan tuberculosis has not yet assumed the proportions prevailing in Western countries, or even in some of the towns of the Far East. The reason for its comparative rarity is to be ascribed to the absence of thickly populated centres and the lack of ready means of communication—a lack which adds much to the isolation of the inhabitants of a country whose innate conservatism is fostered by racial and religious differences. According to Major R. G. Archibald, writing in the *Annals of Tropical Medicine and Parasitology*,[1] tuberculosis may have been introduced from Egypt into the Sudan as far back as 2600 B.C. At the present time the disease is for the most part confined to the larger towns of the Northern Sudan, whereas amongst the hardy nomadic tribes of the desert the disease is practically unknown. The Sudanese tribes, especially the Hadendowa, are particularly susceptible to respiratory diseases such as bronchitis and pneumonia. Adenitis appears to be the commonest variety of tuberculous disease encountered, and in this paper an instance of breast tuberculosis in a Sudanese woman of 40 years of age is described, where the pectoral glands were also affected. The gross pathological appearances of the breast removed at operation suggested tuberculosis in which fibrosis was a marked feature.

DYSPEPSIA IN EARLY CHILDHOOD.

FAULTY secretion of the gastric juice is held responsible for much of the dyspepsia from which adults suffer. For some obscure reason it has often been assumed that the gastric secretion in early childhood must be normal; so early in life the stomach has not had time to contract those evil habits which are distressingly common in late adult life. In a valuable paper in the *Paris Médical* for Nov. 4th, Prof. Taillens, of Lausanne University, confesses to having been guilty of this assumption, and it was only after systematically carrying out analyses of test meals in children that he came to revise his views. In the last series of 100 cases of infantile dyspepsia treated at his hospital, there were 67 showing hyperchlorhydria, 29 hypochlorhydria, and only four a hydrochloric acid content within the normal limits. For a child of 1 to 10 years, hyperchlorhydria may be said to exist when the total acidity exceeds 2·30 or 2·50 per thousand, and hypochlorhydria when this figure is below 1·40 or 1·50 per thousand. In three children between the ages 6 and 9 years he has observed severe hyperchlorhydria, as shown by the figures 4·3, 4·4, and 5·11 respectively. At the other extreme there were two children between the ages 7 and 8, whose hypochlorhydria was 0·10 and 0·36 per thousand respectively. The illustrative cases published by Prof. Taillens show prompt recovery from the effects of these two conditions when the composition of the gastric juice was artificially restored to normal as far as its HCl content was concerned. One patient was an infant aged 15 months—pale, puny, and languid. The total acidity was 3·6. Half an hour after each meal a little bicarbonate of soda was given in warm water. This simple device immediately restored the child's appetite, colour, and liveliness. Instead of weight being lost it was gained steadily, and some weeks later another examination of the gastric juice showed that the total acidity was reduced to 2·5 per thousand. Some of the children brought to Prof. Taillens's hospital were so debilitated by their dyspepsia that their appearance was suggestive of tuberculous peritonitis. With regard to the reverse picture—hypochlorhydria—it may be betrayed by the presence of persistent diarrhœa and by no other symptom. This phenomenon is almost pathognomonic of hypochlorhydria in children over 1 year, when the patient is afebrile and the diarrhœa is refractory to ordinary methods. By giving hydrochloric acid at the end of each meal in such cases, it is possible to regulate the action of the bowels and to

[1] Issued by the Liverpool School of Tropical Medicine (vol. xvi., No. 3, Oct. 18th, 1922).

restore the general tone of the body. The effects of a shortage or excess of HCl in the gastric juice may often be slight, but this is not always the case. When the result is simple dyspepsia, Prof. Taillens claims never to have failed to restore health by the simple methods described. He has seen several hundred such cases, in hospital and private practice, and the correctness of his diagnosis of the cause of the dyspepsia appears to be confirmed by the therapeutic results he has achieved.

PRESENTATION TO PROF. SHARPEY-SCHAFER.

SOME time ago it was suggested that the Edinburgh meeting of the British Association would form a fitting occasion for the presentation to Sir Edward Sharpey-Schafer of some token of their esteem from his present and past demonstrators and fellow research workers in London and Edinburgh. As so many of those who had been trained under Sir Edward Sharpey-Schafer now occupy posts in distant lands, it was found impossible to make the necessary arrangements for the presentation at that time. It was finally arranged that the presentation should take the form of a full-sized bronze plaque, and that a medal replica should be presented to each of the many subscribers. The medal shows in bold relief the head and shoulders of Sir E. Sharpey-Schafer, and bears on the reverse the inscription :—

Sodali bene merito
Sodales bene volentes
MCMXXII.

The sculpture was carried out by Mr. C. d'O. Pilkington Jackson. The plaque is a work of art and an excellent portrait; it has been mounted on stone, with the inscription beneath. Sir E. Sharpey-Schafer feels that the plaque should eventually go to the University of Edinburgh, but at present it remains in the sculptor's studio. The large list of subscribers includes many of the leaders in physiology and other branches of medical science in this country and abroad.

We congratulate Sir E. Sharpey-Schafer on the reception of this mark of wide professional and personal esteem, and join with his colleagues in hoping for a long continuance of his successful work.

TREATMENT OF WERLHOF'S DISEASE BY PROTEIN SHOCK.

TREATMENT by the intramuscular injection of a protein, such as sterilised milk, has now reached a stage on the Continent when there is hardly a disease in which it is not given a trial. In a recent paper Dr. H. C. Gram,[1] of the Rigshospital in Copenhagen, points out that of the various forms of protein therapy, that of intramuscular injection of milk gives rise to far more powerful reactions than an injection of the same amount of auto-, iso- or hetero-serum. Provided less than 10 c.cm. of milk is injected, the reaction is not dangerous, however unpleasant it may be. He reports the following case. A married woman, aged 59, developed large and small ecchymoses first on the legs and later on the trunk and arms. There was some fever with pain in the limbs. After these symptoms had lasted some time, she began to bleed from many different sources. There was severe epistaxis, vomiting of blood, hæmaturia, hæmatothorax and metrorrhagia. There was also a fresh outbreak of ecchymoses. She was admitted to hospital about four months after the onset of the disease. It was sufficient merely to press a fold of skin firmly to evoke a typical ecchymosis. As various other methods failed to check this hæmorrhagic tendency permanently, 8 c.cm. of sterilised milk were injected into the muscles in the gluteal region. The temperature rose to 40·3° C. on the evening of the same day, and remained between 39° C. and 40° C. till the fourth day, when it suddenly fell to normal. Before the injection, and a few hours after it, a small incision in the ear gave rise to hæmorrhage which persisted ten minutes and then required artificial means for its arrest. About a fortnight after the first injection, 2 c.cm. of sterilised milk were injected into the gluteal muscles, and when the ear was incised a few days later, the bleeding lasted only three to four minutes. Two more injections were given, each of 4 c.cm., and the reactions provoked were comparatively slight. On the patient's discharge she felt perfectly well, and there were no bruises or hæmorrhages. On her admission to hospital the rate of coagulation of the blood was 12 minutes; on the day after the first injection it was between 15 and 16 minutes. Soon after the second injection it was perfectly normal, and on one occasion it was even more rapid than normal. As, however, these injections failed to improve the condition at once, they are evidently not suitable for acute cases with hæmorrhages threatening life. But in sub-chronic forms of Werlhof's disease they deserve further trial.

[1] Hospitalstidende, Oct. 4th, 1922.

THE TECHNIQUE OF AURAL TREATMENT.[1]

Dr. Molinié gives in a valuable brochure a description of new instruments for examination and treatment of the ear which, whatever may be the ultimate verdict on their practical utility, are at least evidence of great ingenuity and are worked out thoroughly on original lines. Of these his otoscope is the instrument which is most likely to prove of real value. Mounted on a head-band below the usual electric forehead lamp is a binocular telescope designed to give a magnification of 6 to 7 diameters at a distance of 30 centimetres. The optical arrangement is so constructed as to project, not in the antero-posterior, but in the lateral plane, and takes the form of a narrow rectangular box placed in front of the eyes; focusing is effected for each eye separately by a screw at each side, and by this means the magnification may be increased to 10 or 12 diameters. Its great advantage over the ordinary forms of illuminating and magnifying otoscopes is that the apparatus is attached to the observer and not to the patient, and thus permits the unimpeded use of the usual aural specula and instruments. The exact arrangement of the lenses and prisms is not given, but the apparatus is made by a firm in Paris. The author has also constructed additional pieces of optical apparatus, which can be attached to the otoscope and enable an observer on each side of the operator to see the drum and to view manipulations and operations; or with a more powerful illumination the image may be thrown on two small screens, one on each side, to afford a view to a number of persons simultaneously; or, again, two tiny cameras may be substituted and stereoscopic photographs obtained. It is, of course, impossible to judge of the value of this ingenious machine without seeing it in practical use, as this depends largely on the clearness of the image and the illumination; unfortunately, the few photographs obtained by this method, reproduced in the book, are not conspicuously clear.

The second part of the book is devoted to an invention which, although novel and ingenious, is of doubtful utility. It consists primarily in a small forceps mounted on a spring handle, the sharp jaws of which are pushed through the drum to grip the handle of the malleus or, with differently shaped ends, may be used through a natural or artificial perforation to seize the incus or stapes. The author advocates this method to test the mobility of the chain of ossicles instead of the classical tests of Seigle and Gellé, and, for treatment, attempts to restore mobility to the ossicles by continuous traction with a small weight, by hand-manipulation through the spring handle, and by vibration through an electro-magnet applied by means of this forceps. He points out that attempts to move the ossicles by means of inflation or oto-massage act through the drum-membrane and are necessarily ineffective when the latter is rigid, locally

[1] Instruments et modes personnels de semeiologie et de thérapeutique otologiques. By Dr. J. Molinié, formerly President of the French Oto-Rhino-Laryngological Society, Oto-Rhino-Laryngological Consultant to the XVth Army. Paris: A. Maloine et Fils. 1922. Pp. 90.

thinned, or perforated. As an important addition to these mechanical methods he employs the faradic and the galvanic current with his forceps as the active electrode, and maintains that by this means the current is more exactly limited to the ear than by other means, though he recognises the disadvantage that the consequent inflammation and desquamation of the drum may prevent a repetition of the treatment for a fortnight. Further, he has used electrolysis to produce a perforation of the membrana tympani, and he suggests, though he has not tried, the same method to divide adhesions and destroy thickenings in the region of the fenestra ovalis. He also advises ionisation with the aid of these forceps in cases with perforation of the drum, but has not yet employed it; it is difficult to see what advantages this can have over the ordinary simple method of ionisation, which is a well-established treatment for aural suppuration and of which Dr. Molinié does not appear to have heard.

From the description of these ingenious but elaborate forms of treatment the reader will turn eagerly to the final chapter on results, to find there little encouragement to justify a method which must always cause inflammation of the drum with a risk of more serious damage. The hearing has not been found to undergo any appreciable alteration, though the author believes that the progress of deafness has been delayed; tinnitus of catarrhal or post-suppurative origin has usually been benefited, and even a few cases of otosclerotic tinnitus have been improved, by the mechanical treatment, while the claim is made that tinnitus of nervous origin without objective signs is often satisfactorily relieved by the electrical method. No figures are given of the numbers of cases treated or of the percentage of those improved, and the impression is gained that, while Dr. Molinié has made a courageous attempt to relieve where treatment has previously failed, the problem is not yet solved.

HEART-BLOCK AND THE STOKES-ADAMS SYNDROME.

THE advance in our knowledge of the mechanism of heart-block, which resulted from the introduction of the polygraphic and electro-cardiographic methods, was at first confined to those forms in which the conductivity between auricle and ventricle was impaired. More recently a considerable number of observations, both clinical and experimental, have been published concerning another variety of block which involves the Purkinje system below the A-V node. In a well-illustrated paper in the *Lyon Medical Journal* of Sept. 20th, Dr. L. Gallavardin records a series of 51 cases of heart-block which have come under his own personal observation, and discusses various points of interest as exemplified by this group. The cases he divides into two main classes: (*a*) those exhibiting auriculo-ventricular block characterised by impairment of conductivity from auricle to ventricle; and (*b*) those with "nodo-ventricular" block in which the lesion is presumably situated distal to the A-V node. Both lesions are frequently associated with one another in the same case, and the importance of differentiating between them lies in the functional manifestations to which they give rise. In the former group, even when auriculo-ventricular dissociation is complete, the functional activity of the heart may still be maintained by the appearance of an idio-ventricular rhythm, and, once the idio-ventricular rhythm is established, Stokes-Adams attacks will occur only if the case is complicated by the addition of nodo-ventricular block. But it is not only the more prolonged periods of ventricular asystole which, according to Dr. Gallavardin, are attributable to nodo-ventricular block, for he points out that simple intermissions of the pulse due to heart-block are not infrequently met with in cases in which there is no evidence of impaired conductivity between auricle and ventricle. Such incidents suggest that the lapse of the ventricle is due to involvement of the nodo-ventricular region. Partial nodo-ventricular block may be recognised graphically by alterations in the ventricular complex of the electrocardiogram, which exhibits the features characteristic either of a branch bundle lesion or of arborisation block. In cases of complete A-V dissociation the idio-ventricular rhythm appears to be controlled by a centre situated between the A-V node and the bifurcation of the bundle of His, and during the periods of ventricular asystole, which characterise the Stokes-Adams syndrome, there is a temporary functional discontinuity between the idio-ventricular centre and the mass of the ventricular muscle.

THE WORKS DOCTOR IN FRANCE.

DURING the war the necessity of protecting the supply of labour was the principal occupation of the French Ministry of Munitions. If the sacrifice of the workers' health had gone on as at the outset, production would have come to a standstill; accordingly precautions were taken to select the right type of worker for particular jobs and to provide medical supervision in the workshops. During this time of stress, industrial physicians were installed in most of the munition factories, and the workers themselves recognised their value. Prof. Etienne Martin, who tells the story in a recent issue of the *Journal de Médecine de Lyon*, assures us that the workers are now anxious to retain these medical services in factories. In France the workers' laws form a labour code, which treats successively the work contract, wages, placing of workers, duration of work, night work, weekly rest, hygiene and security of the workers, and the inspection of the work. Special regulations were miposed later on certain dangerous industries. Where, for instance, a candidate for employment will be exposed to the risk of lead poisoning a visit to the employment office is enforced, and a medical certificate must be produced to the effect that he has not, at that time, any symptoms of lead poisoning, nor any disease likely to be aggravated by lead; this certificate must be renewed one month after engagement, and thereafter once a quarter. Analogous precautions are imposed upon industries concerned with mercury, glass-making, animal hair, and compressed air. Here we have something analogous in our own factory inspection, but in France all the large industries consider an industrial physician a necessity, although they are not obliged to employ a doctor by the labour code. Prof. Martin sets out as follows the various directions in which the "médecin d'usine" can be of service.

1. For putting into force the protective hygienic measures, present or future, which constitute the labour code.
2. For obtaining a rational recruitment of the labour supply and for the elimination of the sick and carriers of disease who might infect their comrades.
3. For exercising the indispensable control of the employer in all accidents, industrial diseases, and invalidity insurance.
4. For minimising the effects of working accidents by rendering immediate first-aid.
5. For managing the surgery, works of assistance, or beneficences which have been created by the management.

The coöperation here suggested between doctor and employer is very close, and Prof. Martin meets some of the familiar objections which have been raised to it. The most serious from the workers' standpoint is the interference with the so-called liberty of labour. But it is, as Prof. Martin points out, in the workers' own interest that only such as are fit for employment shall be taken on. The disease carrier is a risk to his comrades. The medical visit before engagement is not for the purpose of rejecting the mutilated or the infirm, but to protect them from aggravation of their infirmity and to place them according to their working ability. To avoid the works doctor coming into unfair competition with the general practitioner the author suggests that he shall be paid by the employer, and thinks that a part-timer should be restrained from treating a worker outside the factory, except by special request. But he points out that full-time doctors would more readily secure the coöperation of general practitioners in the neighbourhood. Prof. Martin lays great stress on the collaboration with the employer, which puts the works doctor in a position quite apart from that of a

practising physician. The works doctor is for him an expert chosen by the employer to evaluate the physical power of the worker at the moment of his engagement, his possible adaptation to the work of the industry; he is the expert who verifies the injuries and invalidities resulting from accident and disease. He is the hygienist who indicates to the employer the practical measures for protecting his workers against industrial illnesses and contagious diseases which they are likely to contract in the workshop. To do this efficiently he requires not only special training but a knowledge of the minute processes of the particular industry. Of general matters he must know the social laws with reference to labour accidents and industrial illnesses; the rights of the injured in the war, subject to the law of pensions, and of the victim of accidents at work; and the laws relating to public health and the labour code. He must have experience in the medico-legal examination of the injured and the drawing up of certificates and reports. His study of industrial maladies should be completed by a precise knowledge of industrial toxicology. Prof. Martin urges university faculties of medicine to take up the question of training expert doctors in industry. The professors of medical jurisprudence should be able to modify their courses to include industrial maladies and industrial toxicology.

THE PROBLEM OF TUBERCULOSIS ON ACTIVE SERVICE IN AMERICA.

WHEN the United States came into the war in 1917 and was forming an army, tuberculosis was a great medical anxiety, the question being where to draw the line excluding men who might prove dangerous in crowded barracks and camps without unnecessarily rejecting men at a time when every one was taking grave risk to life. The story is told in the *Military Surgeon* for November by Colonel Bushnell, Medical Corps, U.S. Army. It was decided that no one was to be refused unless he had râles in his chest, or evidence of large lesions arrested. Decisions were not always reliable, so a committee of tuberculosis specialists was set up to re-examine the men in every unit before they went overseas, and though some units were not examined, and though individual members had sometimes to deal with five or six hundred men in a day, 23,991 cases were discovered, 7·2 per 1000. It was feared that tubercle might spread rapidly in the army, but in fact it did not, and cases recognised overseas were usually in men who had not been re-examined before leaving home, and the numbers anyhow got fewer as the war went on. When the army was being demobilised the boards found 1356 tuberculous people among 2,500,662 soldiers, 0·542 per 1000: and there is here no evidence that tubercle was spread or caught during the war. France in 1916 announced she had had 87,000 cases, but 80 per cent. were incorrectly diagnosed. Germany was so short of men that she was forced to put consumptive patients into the army, where many of them absolutely improved in health, and they did not spread their disease, for consumption decreased in the German Army during the war, from 2·8 per 1000 in 1914–15 to 0·78 in 1917–18. Is the consumptive, then, a danger to his fellow-soldiers? Colonel Bushell thinks that adult tuberculosis is a recrudescence of an infection latent since childhood, and therefore not attributable to the service, and he quotes an opinion from Sir William Osler[1] that the tuberculous soldier brings his disease with him into the army. Colonel Bushnell questions how many of the men discharged from the American Army as tuberculosed, and granted pensions on that account, had really contracted the disease in the service. But though evidence is presented that some cases of tuberculosis were passed into the service knowingly, and although the Tuberculosis Committee invalided 23,991 men for tubercle from units while still in the United States, the official position is made clear by an order of the Bureau of War Risks that compensation shall be given for disability from disease, not caused by wilful misconduct, all persons being held to have been sound when accepted from April 6th, 1917, even though rejected physically immediately on joining his unit. "Such legislation," he says, "is always to be expected in a democracy when large bodies of men are concerned," and he draws attention to the grave responsibility which such a principle will cast on the medical officer who first examines a potential recruit. But his conclusion that "there is no trustworthy evidence that tuberculosis is communicated from man to man in our civilisation under military conditions" will provoke much discussion, and his long and careful paper should be read by all interested.

[1] THE LANCET, 1916, ii., 220.

THE CLINICAL LECTURE IN PRINT AND IN PRACTICE.

AMERICAN industry has given us many new medical works, and American ingenuity has often given a novel form to these works. Amongst such innovations is prominent the increasing frequency of books which consist of verbatim reports of the lectures and questions to students and patients at some of the great clinics of the hospitals and universities of the United States. The original mind and trenchant style of the late J. B. Murphy helped to popularise such publications, and we have read with great interest the latest work[1] in this form which reproduces a series of the Tuesday clinics at the Johns Hopkins Hospital given by Dr. Lewellys F. Barker. In his foreword Dr. Barker writes of the change that has occurred in the methods of medical teaching in America, of the substitution of practical clinical work in the wards for much of the systematic class-room and text-book instruction, and he urges, we think with reason, the importance of not allowing such reforms entirely to replace the "amphitheatre clinic," which represents, perhaps, the highest and most advanced form of medical lecturing. His book shows us, in some measure, how admirable the clinical lecture may be; in 31 chapters the reader obtains finished pictures of an immense variety of clinical cases ranging from subacute bacterial endocarditis to the kidney of pregnancy, from post-operative pneumonia to disseminated meningomyelitis, and in each case the complete laboratory findings are quoted, pathological specimens shown, and analogous clinical cases exhibited or referred to in such a way as to elucidate every aspect of the particular problem. The publication of such lectures should have a special value to American practitioners. Cut off from access to their universities by sometimes enormous distances, they may rejoice at the opportunity of receiving in this form the instruction they remember from their undergraduate experience, and it should further be noted that the American medical man's budget allows a more liberal margin for the purchase of books and apparatus than does that of his British confrère. In this country, unfortunately, practitioners find the cost of buying books almost prohibitive, and writers and publishers experience the same difficulty as regards their production. We have some compensation in the fact that the medical man is seldom as far isolated from the centres of learning as to be unable to revisit his medical school or university from time to time. Whether on such occasions he can attend clinical lectures of the character here dealt with is more problematical. It is, Dr. Barker tells us, the clinics of Toronto and Baltimore that have inspired him, and those of Friedrich Müller in Munich, of F. Kraus in Berlin, and of J. Déjerine in Paris, which have left him precious and ineffaceable memories. With the full conviction that our system of bedside instruction and coöperation is not at present to be improved as a means of teaching students, it is certain

[1] Clinical Medicine. 1. Tuesday Clinics at the Johns Hopkins Hospital, by Lewellys F. Barker, M.D., Emeritus Professor of Medicine, Johns Hopkins University; Visiting Physician to Johns Hopkins Hospital, Baltimore. London and Philadelphia: W. B. Saunders Company. 1922. Pp. 617. 35s.

that for the British postgraduate, for the foreign visitor, and for the qualified man from our overseas universities, it would be of advantage if there existed some great institution at which they might have frequent access to the more elaborate type of clinical lecture to which we have made reference. This, of course, is exactly one of the things which a post-graduate school in London could and would furnish if it developed upon the lines recommended by the General Purposes Subcommittee of the Fellowship of Medicine. Under this scheme the school would be served by a general hospital in a central situation, with an administrative office and facilities in the close vicinity for scientific and social meetings. It is proposed that the general hospital should be one of the existing undergraduate teaching hospitals in a central position, and that the institution should cease to receive undergraduates.

THE BACTERIOLOGY OF OBSCURE INFECTIONS.

IT is generally agreed that the diagnosis of influenza is often applied clinically to obscure febrile ailments on very slender evidence, more particularly when the disease happens to be epidemic. This is almost certain to occur in greater or less degree until the bacteriology and epidemiology of influenza are incontrovertibly established. Even if we allow that this disease in its common form is typical and characteristic in its classical manifestations, yet we must also concede that it is almost protean in the variety of symptoms it may induce. Dr. Fielding-Ould discusses this question in an interesting paper which is published on p. 1328 of our present issue. He outlines the details of a series of cases which he observed during last winter and spring. The condition differed from influenza in many ways. The onset was never sudden, as is the case in influenza. Catarrhal symptoms were as a rule absent. The pulse-rate was generally low in relation to the temperature or the febrile period. Several of the patients showed enlargement of the liver with tenderness, and there was some degree of jaundice in many of them. The spleen was often enlarged. There were in certain cases some scarlatiniform spots, often in successive crops, chiefly on the chest and between the shoulders. The tongue was usually covered with brown fur except at the tip, which was red. There was diarrhœa of varying degree in all the cases, and in some it was severe, the motions being suggestive of enteric at first. Dr. Fielding-Ould strongly deprecates labelling such cases "gastric influenza," as is sometimes done, simply because they occur at the same time as an epidemic of this disease. In one of his patients the agglutination reactions for paratyphoid B were obtained, and Dr. Fielding-Ould suggests that all his cases were probably instances of infection by this organism or by some allied member of the typho-coli group. It is obvious that this thesis could only be established by systematic bacteriological investigation of a number of such cases, and we agree with the suggestion that bacteriology in this connexion has lagged in the rear. It must be remembered, however, that the work involved in the adequate bacteriological study of such a group of cases is considerable. At the same time, the bacteriologist may well be asked to put to the test a likely hypothesis evolved as a result of careful clinical study, and the association and coöperation of the bacteriologist and the clinician may well be fruitful in advancing our knowledge. Practical results might follow if each case in a future epidemic of influenza were investigated from the points of view outlined in Dr. Fielding-Ould's paper.

METROPOLITAN HOSPITAL SUNDAY FUND.—At the annual meeting of this Fund, which was held at the Mansion House on Dec. 18th, Hospital Sunday, 1923, was fixed for June 17th. It was announced that for the current year the total receipts of the Fund amounted to £100,889. The collections in places of worship totalled £48,616, being £1651 less than in 1921. Donations amounted to £15,815, a decrease of £6496.

SPIROCHÆTES IN BLACKWATER FEVER: FRENCH WORK IN THE BELGIAN CONGO.

BY C. M. WENYON, C.M.G., C.B.E., M.B.LOND.,
DIRECTOR OF RESEARCH IN THE TROPICS TO WELLCOME BUREAU OF SCIENTIFIC RESEARCH.

THE ætiology of that much-dreaded tropical malady, blackwater fever, is still obscure, and no entirely satisfactory explanation of the sudden destruction of red blood corpuscles with the production of hæmoglobinuria which characterises it has yet been found. The disease is known to be associated with malaria, and the majority of observers regard it as the direct result of invasion of the body by the parasites of malignant tertian malaria. There are some, however, who believe that a specific organism will be found to be the cause of blackwater fever, and the controversy over these two opposed views has continued over many years without any solution to the problem being discovered. It is known that hæmoglobinuria may occur in both man and animals quite apart from any malarial infection, but the cases differ in many respects from the severe disease of malarial countries. It is the view [1] of Dr. M. Blanchard and Dr. G. Lefrou that, even in tropical countries, hæmoglobinuric fever, as they style the disease, is not due to one ætiological factor but several, and they believe that the organism which they have discovered in two cases in the Belgian Congo is one of these. Should their view prove correct, great credit is due to them for the first important advance in our knowledge.

Methods of Investigation.

It will be advisable to examine step by step their methods of investigation and the claims they make. As regards the two cases upon which the observations were conducted, both of them were in Europeans. One, 34 years of age, was in such a serious condition when admitted to hospital that no history could be obtained as to previous illnesses; the other, 42 years of age, had suffered from malaria. At the time of the illness malarial parasites were found in the blood of neither. The younger man died, while the older one recovered. The former had taken quinine fairly regularly, and had actually dosed himself with it on the day his disease commenced, a very common occurrence before an attack of blackwater fever. It appears perfectly clear that the two cases are typically blackwater fever, and any medical man would have been justified in making this diagnosis.

The discovery of the spirochæte was made in the following manner. 10 c.cm. of blood were taken from the vein and placed in a centrifuge tube containing 1 c.cm. of 20 per cent. citrate solution. The mixture was centrifuged at 1500 revolutions to the minute till deposit of most of the cells had occurred. The supernatant fluid was removed to another tube and again centrifuged till the remaining cells had come down. The fluid portion was again separated and centrifuged a third time for a longer period till a slight white deposit had formed. It was in this third deposit that the organism was discovered in both cases. Morphologically, it was a filament 6 to 9 microns in length and 0·1 to 0·2 microns in breadth. It possessed irregular curves, and from the fact that the ends were sometimes looped it seems probable that it was a leptospira of the type seen in infectious jaundice and yellow fever.

The organism was successfully inoculated to guinea-pigs, animals which are particularly susceptible to the leptospira of the above-mentioned diseases. It was passed through a series of nine animals, and it was noted that though the spirochætes were present, symptoms first manifested themselves only on the third passage, when the spirochætes became more numerous. On passing through guinea-pigs the strain

[1] Présence de spirochètes dans le sang d'Européens atteints de fièvre bilieuse hémoglobinurique. Le problème étiologique de cette spirochétose. Bulletins de la Société de Pathologie Exotique. Vol. XV. No. 8. Pp. 699–722. Oct. 11th, 1922.

became at first enhanced in virulence, but later its virulence decreased till the animals were no longer infected. The striking feature of the infection in the guinea-pigs is the tendency to hæmorrhage, which showed itself in the form of hæmaturia and the presence of blood in the peritoneal cavity. The liver became markedly degenerate and of a "chamois" colour. It is worthy of note that jaundice was absent. These points are of importance, for the leptospira of infectious jaundice and yellow fever in these animals produces very marked jaundice but not hæmaturia, though the hæmorrhagic tendency may be very evident in the form of extravasations into the lungs and connective tissues. An attempt was made to cultivate the organism, but this was not successful. The organisms in the infected guinea-pigs were morphologically like those found in the centrifuged deposit of the human blood.

Relations of the Spirochæte Isolated.

The authors discuss their observations, and come to the conclusion that the spirochæte, which they name *Spirochæta biliohæmoglobinuræ*, is the cause of one type of blackwater fever. They note that the cardinal symptom in the guinea-pig is hæmaturia and not hæmoglobinuria, as in man, and they find an explanation of this difference in the high alkalinity of the urine of rodents, which has not the hæmolysing tendency that the more acid urine of man possesses. This, of course, presupposes that in blackwater fever the hæmoglobinuria is due to breaking up of red blood corpuscles in the kidney, as maintained by Plehn, whose views on this subject were noted in THE LANCET for Nov. 25th. Observers are by no means agreed that Plehn's view is the correct one. But it has to be remembered that an organism which produces a certain train of symptoms in man does not necessarily give rise to the same symptoms in such a totally distinct animal as the guinea-pig. On the other hand, it may do so, for the symptoms and lesions produced in man and the guinea-pig by the leptospira of Weil's disease are remarkable for their similarity.

The authors discuss the findings of other observers, and they mention particularly those of Schuffner, who discovered similar spirochætal organisms in a case of hæmoglobinuria in Sumatra. In Schuffner's case the spirochætes were numerous in the blood, and were found post mortem in the liver, lungs, and kidneys. The case, however, was not a typical one of blackwater fever, and Schuffner himself regarded it as a new type of infectious disease. The fact that such an infectious disease exists suggests the possibility that hæmoglobinuria may be an occasional symptom of Weil's disease, and that the cases studied by the authors of this paper may have been of this nature, though clinically they seemed typical of blackwater fever. The occurrence of leptospira in a variety of diseases, including cases of sand-fly fever investigated by Whittingham in Malta, is suggestive of these organisms being widely distributed. It is known that rats may harbour leptospira of infectious jaundice without themselves suffering to any recognisable extent, and it is not impossible that further investigations will show that human beings may be similarly infected. It is not inconceivable that had the authors of the paper examined the blood of patients suffering from other diseases or apparently healthy men as controls leptospira might have been found in the blood. The scarcity of the spirochætes in the two cases may raise doubts as to their ætiological connexion with the actual blackwater fever. The authors, however, are guarded in their conclusions, and only claim that their organism is the cause of one of the diseases which have been classed under the heading hæmoglobinuric fever. The discovery is of prime importance from whichever point of view it is regarded, but it cannot yet be accepted as an established fact that the cause of blackwater fever has been discovered. In the table they give of the various spirochætal diseases the authors mention another one which they have encountered, the causative agent of which can be inoculated to guinea-pigs, and which they state is transmissible from animal to animal by the bed bug. The known distribution of these organisms is extending, and the question of associating any one of them with any particular disease is becoming more and more difficult to answer.

The attention which the observations recorded in this paper are sure to receive will lead to many investigations along the same lines, so we may confidently expect that very shortly the position of *Spirochæta biliohæmoglobinuriæ* in its relation to blackwater fever will be established.

PERMANENT COMMITTEE OF THE OFFICE INTERNATIONAL D'HYGIÈNE PUBLIQUE.

ORDINARY SESSION OF 1922.

THE Permanent Committee of the Office International d'Hygiène Publique held its ordinary session of 1922 from Oct. 23rd to Nov. 1st, under the presidency of Mr. O. Velghe (Belgium). The delegates included Messrs. M. Amunategui (Chili), C. Barrère (France), G. E. Bentzen (Norway), Rupert Blue (United States), Sir George Buchanan (Great Britain), J. Cantacuzene (Roumania), H. Carrière (Switzerland), W. Chodzko (Poland), Duchêne (French West Africa), P. Gouzien (French Indo-China), A. Granville (Egypt), Hakim-ed-Dovleh (Persia), J. Jitta (Netherlands), Ricardo Jorge (Portugal), A. Lutrario (Italy), de Navailles (Tunis), W. Perrin Norris (Australia), Oberle (Morocco), P. J. Patrick (British India), Petrovitch (Kingdom of Serbs, Croats, and Slovenes), L. Raynaud (Algeria), Fr. Roussel (Monaco), P. G. Stock (Union of South Africa), Thiroux (Madagascar), as well as Messrs. J. de Cazotte and H. Pottevin, Director and Assistant Director of the Office.

Revision of the International Sanitary Convention of Paris, 1912.

The Committee concluded its examination of the revised draft of the International Sanitary Convention of Paris of 1912. Chapter I., concerning the measures required for prophylaxis of plague, cholera, and yellow fever, had been considered at the preceding session. Chapters II. (Special Provisions for Countries in the East and Far East) and III. (Special Provisions for Pilgrimages) bear on the carrying out in Egypt of the regulations laid down in Chapter I., the sanitary regulations for shipping in the Near East, Red Sea, and the Persian Gulf, and the supervision of the pilgrimage to Mecca. The text of the chapters after revision is transmitted to the French Government for communication to the various Governments concerned, with a view to the assembly of the next International Sanitary Conference at which the proposals will be decided upon.

International Nomenclature of Diseases.

The nomenclature of diseases for use in the compilation of nosological statistics, was revised in 1909, and in 1920, on the initiative of the League of Red Cross Societies, the French Government convened another international conference with a view to a further revision. The nomenclature laid down in 1920, which was circulated to the members of the Committee in the course of the session, was regarded as satisfactory, and it was agreed to recommend the adoption of this nomenclature to the various Governments represented. A special difficulty had, however, arisen since M. Bertillon, the moving spirit of the various conferences, died while the publication of the proceedings of the Conference of 1920 was still in preparation. Certain members of the conference considered that the text submitted did not always reproduce exactly the decision actually reached by the conference, and negotiations are now in progress for the correction of these errors.

Therapeutic Serums and Derivatives of Arsenobenzol.

The office had obtained a considerable amount of material concerning the derivatives of arsenobenzol —their toxic effects, the regulations governing the

manufacture and importation of these products in different countries, and the possibility of their eventual international regulation. The subject appeared still to be incompletely elucidated, and it was decided to carry on the investigations already in hand and to prepare a report to be discussed at the spring session, 1923.

With reference to the laws and regulations of different countries regarding therapeutic serums, the inquiry has so far been limited to anti-diphtheritic serum, on which a special report prepared by the permanent staff of the office was presented[1] to the Committee. The Committee has decided not to undertake the preparation of a draft international regulation for the strength of diphtheria antitoxin at the moment in view of information now being obtained from the conferences on standards for therapeutic sera, which are being held under the authority of the Health Committee of the League of Nations.

Bills of Health and Sanitary Log-Book of Ships.

During its preceding session the Committee had studied questions concerning Bills of Health and the institution of a sanitary log-book on ships.

The President summarised the chief aspects of these complicated questions as follows. As to the former the possession of such a Bill is not compulsory on ships but in two or three Articles the International Sanitary Convention assumes the existence of such a Bill. The question remained as to whether the institution of the Bill should be made general or suppressed as useless, and if the former course were decided on, what means should be taken to enforce the decision. The period at which a ship should take out a new Bill of Health and the character of the information demanded thereon were also important unsolved points. Similar questions arose in connexion with the sanitary log or record on board. No provision is made for such a log-book in the Convention of 1912, which, however, in some places makes reference to the certificates which the ship may demand of the sanitary authorities, as evidence of the measures to which she has been submitted. Should the log-book be required for all ships or only for those carrying a doctor, who should draw it up, and what information should it contain? The solution of these and other questions is necessary before any proposal regarding a uniform Bill of Health can be put forward.

The staff of the office had collected much information and had prepared two schemes: the first consists of a Bill of Health alone, to relate to one voyage only, in which is inscribed all information regarding the ship and the ports of departure and call which is generally the subject of entry in Bills of Health. The second scheme makes provision for two documents of which the one is a Bill of Health limited to a description of the sanitary condition of ports of departure or call and the other a sanitary log-book reserved for information concerning the ship, the crew, and the sanitary occurrences on board. In the sanitary log-book, entries would be made by the sanitary authorities of the ports, and would include information as to any measures of disinfection and de-ratisation and other information would be entered from time to time by the captain or the ship's doctor. The Committee reserved for further consideration the two schemes drawn up by the office, together with two others suggested by the sanitary administrations of Italy and Algeria. These will be printed and circulated, and a decision will be arrived at during the spring session of 1923.

Signals by Means of which Ships may make Known, on Arrival, the Sanitary Condition on Board.

The international code of signals in force since Jan. 1st, 1901, comprises a certain number of conventional signs relating to the sanitary condition of ships.

The yellow flag, representing the letter Q, may be flown by any ship whose captain has reason to believe that he may be placed in quarantine. The yellow flag quartered with black (two yellow and two black squares), representing the letter L, signifies that the ship flying it has had, either before departure or during the voyage, cases of cholera, plague, or yellow fever; at night time three lights at a height of at least six metres above the gunwale forming an equilateral triangle and situated at a distance of at least two metres from one another take the place of the flag. The light of the apex is white and that of the two angles at the base red.

The code also comprises a signal with two flags corresponding to the letters T. Q., which signifies "Bill of Health coming from . . ." The signal with three flags Y, F, S, signifying "exanthematic typhus"; the signals N, W, S and M, W, Q signifying respectively "typhoid fever" and "malarial fever." In addition to the signals given above every captain may, by means of various combinations of flags, compose words which are not given in the vocabulary of the code.

It will therefore be seen that there is ample opportunity of making known the sanitary condition on board when sighting land. The inquiry made by the Office of the sanitary authorities of the participating countries showed that the yellow flag (letter Q) is generally used and that the use of the L flag is also very general. But complicated combinations or even simple combinations of two or three flags are only used in exceptional circumstances. The committee considered that it would be well to have a wider range of simple signals and passed a resolution recommending the introduction of special signals in the form of a flag by day and of lights by night to show:—

1. That the ship is free from all diseases: suggested signal by day, a yellow flag, by night a green light over a white light.

2. That the ship is suspect: by day, two yellow flags one above the other; by night, a white light over a green light.

3. That the ship is infected: by day, the L flag of the "International code of signals"; by night, a red light over a green light.

Measures against Abuse of Narcotics and Alcohol.

The Italian delegate communicated the draft of Italian legislation dealing with the illegal traffic in narcotics. This proposal deals with: (1) The different classes of delinquents by making the penalty heavier as the moral responsibility appears greater; (2) penalties—e.g., imprisonment, fine, confiscation, suspension, publication of the sentence in papers with the widest circulation; (3) more serious penalties for serious offences and for sales to minors.

The delegates from France, Holland, the United States of America, Denmark, and Tunis gave an account of the legislation in force or about to be introduced in regard to opium, cocaine, &c., in their respective countries. The major quantity of morphia and cocaine consumed in Europe comes from Germany. It was considered that the only way to put a stop to international smuggling would probably be to have severe supervision in factories and to require, for instance, that an official representative should prevent the exportation of any quantity of these drugs to a destination which is not guaranteed. A note from the delegate for India drew attention to the consideration that a moderate use of opium as practised among the natives in India does not necessarily entail danger to the population. The Polish delegate read a memorandum[2] concerning "the effect of the prohibition of alcohol (spirits, &c.) during the war on the number and the development of psychic diseases in Poland." It shows the favourable effects of prohibition of alcohol (which was in fact unobtainable) on the number and the seriousness of alcoholic psychoses and of crimes due to alcoholism. In Belgium mental specialists agreed that the number of cases in asylums had diminished owing to the new legislation relating to spirituous liquors.

Public Health Organisation in Different Countries.

Under this heading certain communications were made on measures for the protection of the health of children in the United States, in Poland, and in French Indo-China. The organisation of hygiene in

[1] See Bulletin of the Office International for November.

[2] This memorandum will be published in the Bulletin.

French Equatorial Africa was also referred to. These communications will appear in the Bulletin of the Office International.

Epidemiological Data.

Communications were received and considered on the following subjects: the sanitary conditions of Poland, the sanitary state of Roumania, small-pox in Switzerland, the measures taken against trachoma in Indo-China, the prevalence of yellow fever on the West Coast of Africa, plague in Madagascar, and international stastistics concerning cancer.

In regard to plague in Madagascar, attention was drawn to the occurrence of septicæmic cases extremely rapid in their development and sometimes causing death in less than 48 hours. In these cases no pulmonary symptoms occurred and the evidence pointed to the transmission of infection from case to case by means of fleas without the intermediary of rats. Cases in which plague appears to have been carried in this way were also brought forward by the delegate for Algeria. This method of plague propagation would appear to be more dangerous, at least under certain conditions of housing and living than has hitherto usually been admitted.

The Swiss delegate mentioned that in 1921 there were cases of small-pox in the cantons of Bâle and Zurich, where it had for many years been practically unknown in spite of the fact that vaccination is not compulsory in these cantons. The disease manifested itself in two different types: at Bâle the usual serious symptoms were present, elsewhere the disease was entirely benign. The Swiss sanitary authorities are of opinion that in this second instance the outbreak was definitely an outbreak of modified small-pox. The discussion showed that this benign small-pox is present in other countries under various names. The delegate of the Serbs, Croats, and Slovenes made a statement concerning the sanitary state of his country, which he claimed to be satisfactory, and also as to the sanitary works which are being carried out. The British delegate drew attention to the occurrence in August, 1922, of the first cases of botulism,[3] which had been reported in Great Britain. A statement by the delegate for British India showed that Colonel W. Glen Liston's apparatus[4] for the deratisation of ships by means of hydrocyanic acid gas gave excellent results in Bombay and that the use of this apparatus may be extended to other ports of India.

HEALTH RESORTS AND WINTER SPORTS

FOR some time it has been recognised that a mountain holiday has a far-reaching and beneficial effect on the healths of widely varying classes of people, if only because mountains imply valleys, while mountains and valleys together imply the widest variety of elevation, humidity, sun, and wind.

Invalids and convalescents of vastly differing classes resort to the mountains and subjacent valleys with advantage. This they have done for many years, but winter sports have now become a recognised institution, and brought with them a new clientèle. These are not only the sound and athletic, who excel in the games appropriate to the snow-covered surfaces of mountain slopes and enjoy winter sports, but many others who, though by no means athletes, are still in need of the general improvement to system and tone which pure air, abundance of sun, and bracing conditions afford, and who are quite well enough to participate in and benefit by the happiness prevalent at the centres of *sports d'hiver*.

For these reasons many medical men have made themselves familiar with the best-known localities for winter sports, advising some of their patients to accompany their more physically active friends to various high-lying places, mainly in Switzerland, and to benefit by the environment and amenities, though they may be unable to take active part in the sports. It need hardly be said that medical men often have to give contrary advice, and recommend persons who intended to take part in winter sports to abstain from any such strenuous diversion. The number of catastrophes that have happened through the too eager athleticism of the unfit has made many medical men cautious of sanctioning unrestrained sport, even while they can admit that exercise proportional to the subject's physical vigour will be all to the good.

Font Romeu and Super-Bagnères de Luchon.

For the most part the centres of winter sport are situated in Switzerland, and they are so familiar, not only to those who have made special studies of climatology, but to a large section of the medical profession, that it is not necessary either to call special attention to them or even to enumerate their names. But of recent years to this number there have been added two centres in the Pyrenees, which are worthy of medical attention. They have been briefly mentioned in the English medical press recently, and it may be convenient now that the season of winter sports is upon us to describe them a little more in detail.

Font Romeu is situated at an altitude of 6000 feet at the eastern end of the Pyrenees on the last spur of the Carlitte Chain. The altitude, therefore, it will be seen, is almost the same as that of Davos, Arosa, or St. Moritz. While the mountains and forests behind Font Romeu constitute an effective barrier against north winds, the rainfall is small, mists are rare, and an exceptional amount of sunshine is enjoyed. There is but one hotel at Font Romeu, but it is a very large one, and an attempt has been made to keep the prices reasonable, while supplying guests with all necessary comfort. There are suites, including sitting-rooms and bath-rooms, and *pension* terms for the winter session of 1922–23, will be available after Dec. 20th. Direct sleeping carriages can be obtained at Paris between the Gare d'Orsay and the Gare d'Odeille-Font Romeu. The winter sports include skating, hockey, curling, ski-ing, bob-sleighing, and tobogganing, and during January there will be international competitions.

About two years before the war the Compagnie des Chemins de Fer du Midi built an electric cog-railway leading 4000 feet up the mountain to the north of Luchon, where on a suitable plateau, with specially large southern and western exposures, a hotel was constructed as an annexe to the well-known Bains de Luchon, and as a centre for winter sports. As at the hotel at Font Romeu, all necessary comfort and luxury can be obtained at a reasonable cost, while the terrain for the practice of winter sports has been suitably prepared. It is claimed at Super-Bagnères that the ski-ing and luge tracks are unequalled, and certainly trouble is spared to the sportsman, inasmuch as he can always return to the starting-point by the mountain railway, and similarly his apparatus is brought back by mechanical means. The winter session commences, as at Font Romeu, on Dec. 20th, and during January and February there is an important programme of athletic competitions. The railway connexion is direct from Paris.

At each of these resorts the terms *en pension* and all information will be given by addressing the Director at the Hotel, whether at Super-Bagnères or Font Romeu.

Our connexions with France, despite political complications, have been drawn closer by companionship in arms, and the Pyrenean health centres are now making spirited efforts to deserve the increased support of a British clientèle. The big railways are affording means of access by the supply of an excellent motor-car service, and at the two winter resorts, which we have described, rather from the point of view of the holiday centre, special medical attention can be obtained in the immediate neighbourhood.

We must not be taken as suggesting desertion of Swiss resorts, but rather as introducing a choice in suitable cases. The Pyrenean spas do not in any general way arrange for the reception of tuberculosis.

[3] See THE LANCET, 1922, ii., 522, 623.
[4] See Journal of Hygiene, October, 1922.

KING EDWARD'S HOSPITAL FUND FOR LONDON.

A MEETING of the President and General Council of King Edward's Hospital Fund for London, for the purpose of awarding grants to the hospitals and convalescent homes for the present year, was held on Dec. 13th, the PRINCE OF WALES being in the chair.

At the commencement of the proceedings a resolution was passed expressing the deep regret of the General Council at the death of Mr. John G. Griffiths, a member of the firm of honorary auditors to the Fund from its inception, who, in addition to much other good work, had revised the uniform system of hospital accounts in 1906.

The State of the Finances.

Lord REVELSTOKE (hon. treasurer), in reporting the amount received for general purposes by the Fund to Dec. 2nd, after payment of expenses, said that on Nov. 10th the Council decided that the amount to be distributed should be £220,000, the same amount as was distributed last year. The net income for the year was estimated on that day at £215,000, but an unexpected legacy since received had raised the estimated total almost exactly to £220,000. In this estimated total was included an anonymous donation of £10,000 given to the combined appeal, but earmarked by the donor for the King's Fund. The balance of the money derived from the combined appeal was treated as being in an entirely separate category. The estimated total also included the sum of about £13,000, representing approximately one-fourth of a full year's interest derivable from the legacies of Lord Mount Stephen and Sir Thomas Sutherland. He had every reason to believe that a full year's interest on these bequests would approach £50,000. It had always been realised that the special distributions of the last few years—the National Relief Fund, the King's Fund Emergency Distribution, the Government grants administered by the Voluntary Hospitals Commission, and the combined appeal—had only been temporary expedients to tide over a particular crisis and to allow time for the development of permanent increases in annual income. The King's Fund had shaped its distribution policy accordingly. Now that the time had come for concentrating on permanent remedies, he submitted that it should be their policy to endeavour to increase their annual distribution, and therefore their power to give steady encouragement and assistance to the hospitals in their efforts to develop new source of income and new methods of controlling expenditure.

Sir WILLIAM COLLINS, in making the annual statement on behalf of the League of Mercy, said that of the 93 districts in which the League was working, the reports received from some were that the payments received were less this year than last year and in other cases more. Some of the districts outside London were sending increased amounts. From recent inquiries he had made, it was practically certain that the League would not give less than the £15,000 which was given last year to the King's Fund.

Sir COOPER PERRY, chairman of the Distribution Committee, presented the report of the committee, and stated that the number of hospitals applying for grants out of the ordinary distribution was 112, an increase of two over the year 1921.

Lord SOMERLEYTON, hon. secretary, presented the list of awards as follows:—

*List of Awards.**

Acton Hospital (of which £500 to extension)	£700
All Saints' Hospital	100
Baby Clinic Hospital (Kensington)	25
Beckenham Cottage Hospital (of which £500 to extension)	575
Belgrave Hospital for Children	1,000
Blackheath and Charlton Hospital (of which £200 to improved kitchen and sanitary accommodation)	300
Bolingbroke Hospital	750
British Hospital for Mothers and Babies, Woolwich (of which £1000 towards the building of the amalgamated hospital)	£1,150
Canning Town Women's Settlement Hospital (of which £200 to reduce debt)	750
Central London Ophthalmic Hospital	600
Central London Throat and Ear Hospital	100
Charing Cross Hospital (of which £400 to new nurses' accommodation)	5,000
Chelsea Hospital for Women (of which £500 to new nurses' home)	1,250
Cheyne Hospital for Children	200
City of London Hospital for Diseases of the Chest (Victoria Park)	3,500
City of London Maternity Hospital	1,000
Clapham Maternity Hospital	300
Dreadnought Hospital (Seamen's)	4,000
East End Mothers' Lying-in Home	600
East Ham Hospital	150
East London Hospital for Children	3,000
Elizabeth Garrett Anderson Hospital	1,250
Eltham and Mottingham Cottage Hospital	50
Evelina Hospital	800
Finchley Memorial Hospital (of which £1000 to extension)	1,150
Florence Nightingale Hospital for Gentlewomen (of which £100 to reduce debt)	300
French Hospital	300
General Lying-in Hospital	600
German Hospital	200
Grosvenor Hospital for Women	600
Guy's Hospital (of which £500 to improvements in nurses' accommodation)	10,500
Hampstead General and North-West London Hospital	2,750
Hendon Cottage Hospital (of which £250 to new operating theatre and X ray room)	500
Hornsey Cottage Hospital	125
Hospital for Consumption, Brompton (including Sanatorium at Frimley)	1,500
Hospital for Diseases of the Throat	200
Hospital for Epilepsy and Paralysis	2,000
Hospital for Sick Children	5,000
Hospital for Women (Soho-square)	1,250
Hospital of St. John and St. Elizabeth	750
Infants Hospital (of which £250 to reduce debt)	750
Italian Hospital	300
Jewish Maternity Home	50
Kensington, Fulham, and Chelsea General Hospital	25
Kensington Dispensary and Children's Hospital	25
King Edward Memorial Hospital (Ealing)	500
King's College Hospital	8,000
London Fever Hospital	250
London Homœopathic Hospital (of which £250 to reduce debt)	1,500
London Hospital (of which £500 to new out-patient electrical department)	13,000
London Lock Hospital (to maintenance of Harrow Road Hospital)	600
London Temperance Hospital (of which £500 to reduce debt, and £1000 to new nurses' home)	3,500
Maternity Charity and District Nurses' Home, Plaistow (of which £500 to rebuilding and extension)	650
Metropolitan Ear, Nose, and Throat Hospital	25
Metropolitan Hospital (of which £1000 to reduce debt)	4,000
Middlesex Hospital (of which £2500 to reduce debt)	9,000
Middlesex Hospital Cancer Charity	850
Mildmay Memorial Hospital (of which £250 to fire staircase)	650
Mildmay Mission Hospital (of which £250 to scheme for purchase of adjoining site)	1,150
Miller General Hospital for South-East London	3,500
Mothers' Hospital of the Salvation Army	300
National Hospital for Diseases of the Heart	400
National Hospital for the Paralysed and Epileptic (of which £1000 to reduce debt)	4,500
Nelson Hospital (South Wimbledon) (of which £500 to extension)	900
Northcourt Hospital and Home for Sick Children (Hampstead) (of which £25 to improvements)	75
Norwood and District Cottage Hospital	350
Paddington Green Children's Hospital	800
Passmore Edwards Hospital for Wood Green, &c.	25
Poplar Hospital for Accidents (of which £500 to new casualty department)	600
Prince of Wales's General Hospital (of which £2000 to reduce debt and £1000 to extension)	6,000
Queen Charlotte's Lying-in Hospital	1,000
Queen Mary's Hospital for the East End (of which £1000 to furnishing of new nurses' home)	5,500
Queen's Hospital for Children	3,500
Royal Dental Hospital of London	500
Royal Eye Hospital	800
Royal Free Hospital	5,000
Royal Hospital, Richmond	650
Royal London Ophthalmic Hospital (of which £500 to reduce debt)	3,500
Royal National Orthopædic Hospital (of which £500 to reduce debt and £1000 to establishment of country branch)	4,000
Royal Northern Hospital (with which is amalgamated the Royal Chest Hospital, City-road)	7,500
Royal Waterloo Hospital for Children and Women (of which £1000 to deficit on extension of out-patient department)	3,500
Royal Westminster Ophthalmic Hospital	500
St. Andrew's Hospital, Dollis Hill (of which £50 to improvements)	200
St. Columba's Hospital (of which £50 to improvements)	350
St. George's Hospital	5,000
St. John's Hospital, Lewisham	500

* The Distribution Committee draw attention to the fact that it must not be assumed that the reduction or absence of a grant implies dissatisfaction.

St. John's Hospital for Diseases of the Skin (of which £100 to furnishing of nurses' home)	£350
St. Luke's Hospital for Advanced Cases (of which £600 to acquisition of new premises)	775
St. Mark's Hospital	300
St. Mary's Hospital (of which £250 to improvements to kitchen)	6,000
St. Mary's Hospital for Women and Children, Plaistow (of which £1000 to new nurses' home)	2,000
St. Monica's Home Hospital	100
St. Peter's Hospital for Stone (of which £150 to improved nurses' accommodation)	300
St. Saviour's Hospital for Ladies of Limited Means (Osnaburgh-street)	100
St. Thomas's Hospital (of which £1000 to improvements)	11,000
Samaritan Free Hospital for Women	1,500
Santa Claus Home	25
South-Eastern Hospital for Children (Sydenham) (of which £350 to new out-patient department)	850
South London Hospital for Women	1,250
Stoke Newington Home Hospital for Women (of which £75 to deficit on improvements to nurses' accommodation)	100
Streatham Babies' Hospital	25
University College Hospital	7,000
Victoria Hospital for Children (of which £500 to recent extension of out-patient department and resident medical officers' quarters)	2,500
Walthamstow, Wanstead, and Leyton Children's and General Hospital	600
West End Hospital for Nervous Diseases (of which £500 to improvements)	1,500
Western Ophthalmic Hospital	225
West London Hospital (of which £1000 to new operating theatres)	5,500
Westminster Hospital (of which £5000 to improvement of existing hospital)	9,000
Willesden Hospital (of which £1000 to extension as general hospital)	2,000
Wimbledon Hospital (of which £1000 to deficit on new nurses' home)	1,300
Winifred House Invalid Children's Convalescent Hospital Home	25
Woolwich and Plumstead Cottage Hospital	25
Special Grant.	
Woolwich and District War Memorial Hospital Building Fund	£1,500
Total—Grants	£213,500
Special Grant	£1,500
	£215,000

Sir ALAN ANDERSON (honorary secretary) presented the list of awards to convalescent homes as follows:—

	£
All Saints' Convalescent Home, Eastbourne	100
All Saints' Convalescent Home, St. Leonards	25
Baldwin Brown Convalescent Home, Herne Bay	15
Beau Site Convalescent Home, Hastings	25
Brentwood Convalescent Home for London Children, Brentwood	15
Brooklands Home (Invalid Children's Aid Association), Worthing	25
Bushey and Bushey Heath Children's Convalescent Home, Bushey	15
Catherine Gladstone Convalescent Home, Mitcham	50
Chelsea Hospital for Women (with a view to encouraging the admission of patients direct from the hospital), St. Leonards	100
Children's Convalescent Home, Beaconsfield	25
Children's Cottage Hospital (in consideration of convalescent cases), Cold Ash, Newbury	25
City of London Hospital for Diseases of the Chest, Saunderton	35
Clevedon Sanatorium (Invalid Children's Aid Association), Broadstairs	25
Convalescent Home for Poor Children, St. Leonards	150
Convalescent Police Seaside Home, Hove	50
Dreadnought Hospital, Cudham	100
Elizabeth Garrett Anderson Hospital (Home of Recovery), Barnet	300
East London Hospital for Children, Bognor	125
Florence Emma Home (Invalid Children's Aid Association), Dover	25
Friendly Societies' Convalescent Homes, Dover and Herne Bay	50
Hamilton House (Invalid Children's Aid Association), Seaford	25
Highgate Convalescent Home for Children, Highgate	40
London and Ascot Priory Convalescent Home, Bracknell	50
London and Brighton Female Convalescent Home, Brighton	25
London Homœopathic Hospital, Eastbourne	50
London Hospital, Reigate	150
Mental After-Care Association Homes, Fairlight	100
Metropolitan Convalescent Institution, Bexhill, Broadstairs (Children), and Walton	75
Middlesex Hospital, Clacton-on-Sea	600
Miller Hospital Convalescent Home, Bexhill	100
National Hospital for the Paralysed and Epileptic, East Finchley	100
National Sunday School Union, Bournemouth	25
Paddington Green Children's Hospital, Slough	75
Poplar Hospital, Walton-on-Naze	50
Prince of Wales's Hospital, Nazeing	50
Queen Charlotte's Lying-in Hospital, Kilburn	50
Queen Mary's Hospital for the East End, Theydon Bois	150
Queen's Hospital for Children, Bexhill	75
Royal Northern Hospital, Clacton	£200
Royal Northern Hospital (Hospital of Recovery), Southgate	400
Royal Waterloo Hospital for Children and Women, Whippingham	75
St. Andrew's Convalescent Home, Folkestone	100
St. Andrew's Convalescent Hospital, Clewer	50
St. George's Hospital, Wimbledon	250
St. John's Home, Kemp Town (Brighton)	50
St. Luke's Home (Children) (in consideration of convalescent cases), Woodley (Reading)	25
St. Mary's Convalescent Home, Birchington	50
St. Mary's Home for Children (in consideration of convalescent cases), Broadstairs	75
St. Michael's, Westgate	50
St. Nicholas' Home (Church of England Waifs and Strays), Pyrford	50
St. Peter's Holiday House, St. Leonards	25
Samaritan Free Hospital, Amersham	100
Seaside Convalescent Hospital, Seaford	100
Suffolk Convalescent Home, Felixstowe	25
Surgical Home for Boys (in consideration of convalescent cases), Banstead	25
Tilford Convalescent Home for Children, Farnham	15
Victoria Home for Invalid Children (in consideration of convalescent cases), Margate	15
Victoria Hospital for Children, Broadstairs	250
Total grants	£5,000

The adoption of these awards having been duly proposed and seconded it was carried unanimously and the cheques were ordered to be sent forthwith.

On the motion of the Chairman of the Management Committee (Lord STUART OF WORTLEY), seconded by Lord MARSHALL, it was resolved to forward to the Government and to the Voluntary Hospitals Commission a memorandum suggesting that schemes of work on hospital improvements, repairs, &c., should be considered in the allocation of funds available for the provision of work in relief of unemployment.

Present Position of the Combined Appeal.

The Chairman of the Revenue Committee, Sir ALAN ANDERSON, said that the Director-General estimated the grand total of the Appeal Fund at £435,000. The two main sources of revenue to which they looked to bring in the balance of the £500,000 were the Advertisement Prize Competition and the Education Auxiliary, which, under the chairmanship of Viscount Burnham, had done wonderful work. The intention was to close down the general appeal by Dec. 31st, and only to leave in activity one or two specific appeals. They were now devoting thought to the permanent methods of increasing the income of hospitals. One of these was the obtaining of increased support from domestic workers, and a meeting would be held at Devonshire House in order to start a permanent organisation as a branch of the League of Mercy. The other direction was that of the organisation of contributions from wage-earners generally. Great stress had been laid, in the propaganda of the Combined Appeal, on the fact that hospitals had a policy and a programme by means of which those who could afford to pay towards the cost of their maintenance would increasingly do so on an organised basis. To that propaganda they unquestionably owed a large part of their success, and he was glad to say that the appeal for permanent support from the classes to whom the hospitals of London meant so much was now ready to follow on and complete the work of the Combined Appeal.

Progress of the King's Fund During the Last 25 Years.

The PRINCE OF WALES said it was exactly 25 years since the King's Fund made its first distribution. The amount distributed in 1897 was £34,000 from the special efforts of the first year, and £22,000 from the estimated annual income. This year £250,000 had already been distributed from the Combined Appeal, and the amount now distributed out of ordinary income was £220,000. In the second year the income from investments was £5000. This year the income from investments was £114,000, and the amount from other sources £106,000. On the other hand, the financial problem facing the hospitals and the Fund has enormously increased. The King's Fund was founded to meet a crisis. The hospitals of London had then a deficit of £70,000 on a turnover of £700,000. The King's Fund now distributed £220,000 a year,

and yet there was a deficit of £210,000. Why was this? Had the income of the hospitals fallen off? Were voluntary contributions dying out? Quite the contrary. Hospital income was more than three times what it was. Voluntary contributions continued to increase and were 50 per cent. more than they were before the war. The present difficulties were due to the fact that hospital expenditure had increased since 1897 nearly fourfold. This was due to the increased number of patients, needing more and bigger hospitals, the wonderful developments of medical and surgical science, and the general rise in prices since the war. The result was that, in spite of the great increase in the King's Fund distribution, there was still a deficit of £210,000. The hospital problem was thus a much bigger one than it was 25 years ago. But, fortunately, the means of dealing with it had also grown. We had, in the report of Lord Cave's Committee, a programme—and, to a very remarkable extent, an agreed programme. In so far as that programme was based on what had actually been done in the past, it was based largely on two things. One was the success of many of the provincial hospitals in organising workshop contributions. The other was the growth of the King's Fund from a mere collecting and distributing agency into a central administrative body, which, being itself voluntary, respected the independence of the voluntary hospitals. This had always been the principle of the King's Fund; and this was the principle adopted by Lord Cave's Committee. The King's Fund had become the Local Committee for London, and Local Voluntary Committees had been set up all over the country to do the same kind of work. Moreover, the Order of St. John and the British Red Cross Society, through their joint council, were now assisting in the solution of voluntary hospital problems, and in their work Lord Cave's Committee also found valuable suggestions. For the better performance of all the new duties arising out of Lord Cave's report, the King's Fund reorganised itself a year ago, and the new system of committees was working well. On the question of cost of working, the Hospital Economy Committee had provided the Distribution Committee with new material. Hitherto the Fund had deliberately left it to the Hospital Committees to inquire for themselves into the causes of high cost shown in the accounts. The Fund was now going a step further, by directing attention to particular methods of investigating and controlling expenditure, beginning with the question of adequate records of quantities consumed.

After the usual votes of thanks the PRINCE OF WALES read the following

Message from the King.

The King desires me to express his gratification at learning that King Edward's Hospital Fund is again able to distribute £220,000 this year, and trusts that the Fund, with the assistance of its many efficient workers, will now be in a position to ensure the continuance of the voluntary hospital system, for which it has always striven. The King heartily congratulates all concerned upon the success of the Combined Appeal of the Hospitals of London; and His Majesty trusts that this great effort, by giving fresh impetus to all who are interested in the work, will substantially reinforce the numbers of our regular contributors.

SWITZERLAND.

(FROM OUR OWN CORRESPONDENT.)

Overcrowding in the Medical Profession.

THE increasing ratio of doctors to population in Switzerland is the object of searching inquiries by the profession. Switzerland is at present passing through a very serious economic crisis. The chief exporting industries are at a standstill, and the tourist traffic is far from what it used to be. Naturally the medical profession is seriously affected by these conditions. The facilities and opportunities for studying medicine are greater here than anywhere. Education, up to entry to a university, is practically gratuitous. Switzerland, with 4,000,000 inhabitants, possesses seven universities with five complete medical faculties, and a great number of students are able to live at home while studying. It is not remarkable, therefore, that the academical professions are well filled. On the other hand, Switzerland has no colonies to drain the overflow of highly-educated people. According to statistics recently published by Dr. Guisan in the *Bulletin Professionel des Médecins Suisses*, the ratio of doctors is highest in the university towns and in tourist centres, as the following table shows:—

Town.	Inhabitants.	No. of doctors.	No. of inhabitants to one doctor.
Zurich	207,000	275	757
Basle	136,000	154	940
Geneve	135,000	227	590
Berne	104,000	154	680
St. Gall	70,400	62	1135
Lausanne	68,500	118	578

It will be seen that the ratio is worst in Lausanne, at once a fashionable tourist centre and a university city which has been called, not without reason, La Mecque Médicale. Lucerne, Lugano, and Montreux with 44,000, 13,400, and 16,700 inhabitants respectively, three well-known places of recreation, have one doctor for 758, 350, and 457 inhabitants respectively. Purely industrial places like La Chaux-de-Fonds, Bienne, and Winterthur compare much better, having one doctor for 1639, 1648, and 1023 inhabitants respectively. In the rural districts the ratio of population varies from 1500 to 4500 to one doctor.

Hospital Accounts.

Dr. Aemmer, director of the Health Department of Basle, has recently formulated a demand to the effect that all Swiss hospitals should publish accounts in a uniform manner to allow useful comparisons to be made and to facilitate economy. Some figures may be of interest. To take three State-run institutions in Basle—in the Bürgerspital (a general hospital) in 1921 the expenses per patient per day amounted to 9.18 francs (1914, 4.43; 1920, 9.80). In the maternity clinic, 12.51 francs (1914, 7.61; 1920, 14.10); and in the asylum, 10.33 francs (1914, 3.93; 1920, 12.51). It may be added that in the Basle isolation hospital the expenses during the small-pox epidemic of last year amounted to 27.52 francs per day per patient. Since 1921 the expenses have begun to decline, owing to the general fall of prices, but they are still very much higher than before the war, chiefly because of the raised standard of salaries and wages. It is improbable that the latter will ever return to the pre-war standard. The Bürgerspital figures show the following proportion between the expenses (in francs) for food and wages:—1914: food, 1.02; wages, 1.43; 1921: food, 2.04; wages, 3.49. The Swiss hospitals vary a great deal. In the cantonal hospital of Lucerne the nursing staff consists of members of a religious order of Besançon (France). The salary of the individual nurse is 50 francs (£2) per year!

Unqualified Medical Practice.

Switzerland has the reputation of being an enlightened country, but dark corners remain, as was shown in an address on quacks delivered by Dr. H. Hunziker, health officer of Basle, before the directors of the Cantonal Health Department at their last annual meeting. The Swiss Constitution leaves the supervision of medical practice to the cantonal authorities. The Federal Government sets up the standard, and provides arrangements for the examinations, for a medical State diploma, but recognition of the diploma rests with cantonal authorities. Of the 25 Swiss cantons 24 now grant the licence to practise

medicine exclusively to holders of the Federal diploma. In the canton of Appenzell alone medical practice is free. "The practice of the medical and veterinary profession is free, and no person enjoying civic rights can be prohibited from exercising these professions." "Higher operative surgery, midwifery, medico-legal and public functions" are reserved for qualified practitioners by means of by-laws, but the canton of Appenzell has become a perfect Eldorado of quacks, having 26 qualified doctors and 35 unqualified practitioners. The latter do not confine their activities to their own canton, but carry on an extensive postal and consulting practice throughout the country. Every oriental and occidental medical system is represented amongst them. Arabian medicine-men, magnetotherapists, electrotherapists, spagirics, herbalists, "eye-diagnosticians," psychophytotherapists, and phrenologists advertise their trades. One of them describes himself as court physician to the Sultan of Perak, another as professor of the University of Lima. Some diagnose all ailments exclusively by the examination of the urine. It has been learnt from a trustworthy source that one of them used to test a hundred samples of urine in half an hour, and to write as many prescriptions in the same time. Others never see their patients; they only require a sample of urine, after which they send the diagnosis and medicament by return of post, and charge a heavy fee. Dr. Hunziker inquired into the original occupations of these unqualified practitioners, and found among them farmers, innkeepers, clerks, clergymen, cobblers, architects, hairdressers, coachmen, policemen, journalists, tramcar conductors, butchers, musicians, and midwives. In the discussion following Dr. Hunziker's address Mr. Howard Eugster, director of the Appenzell health department, regretted the state of affairs in his canton. Appenzell has an advanced democratic constitution, and to alter the present regulations concerning medical practice a referendum would be necessary, and at present the chances of a favourable issue of such a vote are very small, as "freedom" of medical practice is widely regarded as a democratic achievement, and the unqualified practitioners are firmly entrenched in popular esteem. Moreover, they have begun to organise themselves and to carry on defensive propaganda. Under these circumstances the other cantons can only do their utmost to limit the activities of these quacks to their own sphere.

THE MEDICAL INSURANCE AGENCY.

A MEETING of the Committee of the Medical Insurance Agency was held on Dec. 14th at the offices of the British Medical Association, when an interim report was presented by Dr. G. E. HASLIP, the chairman, who was able to state, and to justify the statement, that there had been during the past six months a steady continuation of the prosperity which has marked throughout the activities of the agency. The satisfaction felt by those who have taken policies through the medium of the agency has been reflected in the renewal of connexions.

In *Life Assurance* Dr. Haslip said that the standard set up in 1920 and followed in 1921 had been well maintained. This the figures show. For the nine months ending Sept. 30th, 1922, new life contracts representing £94,023 in sums assured have been secured; the annual premium income representing over £4000. The number of policies negotiated was 114, and these figures compare favourably with the corresponding period of 1921, when the sum assured was £85,931, the premium income £2700, and the number of policies negotiated 84.

In *Motor-car Insurance*, the next most important branch of the agency's work, Dr. Haslip was able to report that the renewal premium income in the period under review had been increased by just over £1000, representing about 80 new policies. He expressed the hope that, with a new system of circularising which will come into force in 1923 the advantages to be gained by taking the recommended contracts of the agency will be even more effectively brought under the notice of the medical profession. The work of the agency, he said, is regularly attracting wider attention owing to the concise manner in which the salient features of the contracts and their special variations have been placed before the medical profession.

Report of the Subcommittee on Educational Grants.

This subcommittee, which was appointed last June, held a preliminary meeting on Nov. 30th, when there were present Dr. G. E. Haslip, Dr. Louisa Martindale, Sir Dawson Williams, and Dr. R. A. Gibbons. The purpose of appointing the subcommittee was to arrive at some method under which the daughters of deceased or disabled medical men may benefit by the benevolent schemes of the Medical Insurance Agency, and Dr. Louisa Martindale was invited to assist with her personal knowledge in respect of female education. The subcommittee submitted a report showing that the first suggestion to be considered at the preliminary meeting was one by Dr. Mary Sturge, who proposed the establishment of bursaries for girls wishing to study at universities with a view to becoming science teachers. It was felt that the securing of this admirable object, having regard to the funds likely to be at the disposal of the Medical Insurance Agency, could not be put in hand at once, and the general conclusion of the subcommittee was that the first attempt should be to make grants towards the cost of education and maintenance at school of suitable girls between the ages of 12 and 14. It was reported that the necessary inquiries were being put in hand in preparation for a further meeting of the subcommittee.

Allocation of Grants to Medical Charities.

The accounts showing that a sum of £965 was available for allocation in various charitable directions, it was decided that there should be a distribution as follows: £400 to the Royal Medical Benevolent Fund Guild; £210 to the Royal Medical Benevolent Fund; £105 to Epsom College Benevolent Fund; Educational Grants (Girls) Subcommittee £250.

The total amount distributed since 1910, when the agency in the third year of its life had for the first time an available surplus, is now £10,007.

REPORT ON SIGHT-TESTING BY OPTICIANS.

WE have received from the Council of British Ophthalmologists the following report on sight-testing by opticians. In 1906, and again in 1919, opticians have made application to the Legislature that their craft may be legally recognised for the purpose of sight-testing, and it is consequent upon these efforts that the Council of British Ophthalmologists has thought it desirable to consider the matter in the interests of the general public. The report is as follows:—

Training of Opticians.

The Council would warmly welcome any scheme which would lead to greater efficiency in the making and fitting of spectacles. It fully recognises that there is a very definite need for a greater supply of properly trained opticians, and ophthalmic surgeons often have cause to deplore the inefficiency displayed in carrying out their prescriptions for glasses.

Sight-testing by Opticians.

In a recent petition (1919), the British Optical Association claimed that opticians should be recognised as capable, not only of carrying out the optician's art of making and fitting glasses in conformity with prescriptions, but also of measuring and determining what glasses are required to compensate for defects of vision in any member of the public who may apply to them. Paragraph 10 of the petition

stated:—"In a very large majority of refraction cases which can be treated by glasses, members of the public do, in fact, visit an optician rather than an ophthalmic surgeon or medical man, and the association humbly submit that it is eminently in the public interest that the optician should be a skilled man and under suitable supervision. A qualified optician, especially when holding a Fellowship Certificate of the Association, would recognise a case in which the eye, through disease or otherwise, could not be properly treated by glasses, and would direct the patient to an ophthalmic surgeon or medical man. An ignorant optician would be likely to supply the patient with glasses which might do great harm."

Training Necessary for Sight-testing.

The Council, however, considers that no course of training short of that required for full medical qualification can produce the skill and judgment necessary to secure the requirements stated in the above paragraph. Every medical man dealing with ophthalmic cases must be equipped with the knowledge necessary for ordinary qualification in medicine and, in addition, with special knowledge of the most delicate and complex sense organ in the body. It is the opinion of the Council that any State recognition of sight-testing by persons possessing only an optical qualification would not be in the interests of the community.

The Scientific Principles of Sight-testing.

The art of prescribing glasses can be divided into two periods—the purely empirical period preceding 1850, when only subjective methods of testing were available, and the period following 1850, when accurate objective measurements began to be used. Those scientific methods have been developed by medical research, and to a great extent they are not available to the optician. The statement that where defective vision is due to other than optical conditions it should be treated by a duly qualified medical practitioner (see petition of the British Optical Association, par. 10, quoted above) is in itself sufficient argument against the optician's claim, since it is well known that changes in the refraction of the eye are often produced in the early stages of serious eye disease. In many such cases an optician may be successful in raising the acuteness of vision to a normal standard, but he would almost inevitably fail to recognise the disease which is the cause of the refractive error. In fact, disease very serious to the eye, or threatening even life, may occur in an eye with perfect acuity of central vision.

Use of Drugs.

An adequate examination of the eyes and a correct determination of the error of refraction cannot be made in young children, especially in cases of squint, while the accommodation (i.e., focussing power) is active. The absence of accommodative effort can only be ensured by the use of certain drugs, which also dilate the pupil. These drugs must not be used in an indiscriminate manner. In certain conditions of the eye their employment is attended by grave risk to sight. In some individuals they produce serious constitutional disturbances. As dilators of the pupil their use is frequently essential in order to determine the presence or absence of changes in the retina or optic nerve. Such changes may be the first indication of general disease, by the prompt treatment of which the life of the patient may be saved or prolonged.

Eye Defects and General Disease.

The treatment of headaches, associated with errors of refraction, demands not only the use of glasses, but also constitutional treatment, which can only be determined by a medical man. In some cases of defects of the muscular balance of the eyes, the use of prisms is necessary. The correct estimation of these and a complete investigation of the case are most difficult problems, since some of these muscular defects are among the earliest signs of serious diseases of the nervous system.

Changes in the refraction of the eyes are often produced in the early stages of eye disease. For example, myopia ("shortsight") often appears in the early stages of cataract, or of chronic glaucoma, a disease which untreated inevitably leads to blindness. Hypermetropia ("longsight") may be met with in the early stages of a malignant tumour. In such cases glasses may bring visual acuity up to a normal standard, but an optician will fail to recognise the disease which will thus be left to run its course.

Optical defects and disease constantly overlap; the former cannot be differentiated with certainty from the latter, nor the latter definitely excluded by any but a medical practitioner who has had special training and experience.

Optician's Standpoint.

The "sight-testing" optician endeavours either to supply spectacles with which the customer considers he can see to his liking, or to provide such lenses as will convert optically imperfect eyes into accurately focussing instruments. All are agreed that the former procedure is indefensible: the latter needs further consideration.

The eye is an integral part of the human body. Developmentally it is, in its most essential elements, an off-shoot of the brain. There is practically no organ of the body which does not react upon it to its advantage or its detriment. Without exposing it to the gravest misfortune it cannot be dealt with as an inert, isolated optical instrument, yet it is in this way only that the optician can view it, and in this way only can he adapt mechanical apparatus to such of its optical defects as his limited means may enable him to recognise. Without the use of drugs to dilate the pupil or paralyse the focussing muscle, in many cases he cannot measure accurately the error of refraction, or be in a position to identify the cases which demand medical advice and treatment. If he were allowed to use such drugs he would become an even greater danger to the community by reason of serious disease which he in his ignorance might produce.

Ophthalmic Surgeon's Standpoint.

The ophthalmic surgeon approaches his refraction work from an entirely different standpoint. To him the eye is an optical instrument, but it is also an integral part of the human body in complex inter-relation with the other parts. Its anatomical proportions and its physiological activities are before his mind. Its pathological disturbances, both local and those dependent on general disease, are known to him. He has at his disposal the use of all drugs necessary for his purposes, and of the indications for and against their employment he is fully aware.

In the investigation of diseases of the eye, the measurement of the acuteness of vision, both with and without lenses, is one of the first steps in the examination of the patient. In refraction work the surgeon takes into consideration the physiological activities of the normal eye. The hypermetropic eye he regards as developmentally imperfect. Astigmatism may be due either to developmental malformation or to disease. Presbyopia (loss of focussing power associated with advancing age) is a physiological condition, but undue rapidity in its progress may herald glaucoma, and apparent recovery of focussing power may indicate the earliest stage of cataract. Myopia is in many instances pathological, and the myopic eye is exposed to grave disorders. With a comprehensive knowledge of facts such as these, the ophthalmic surgeon decides in a pure refraction case what lenses should be prescribed. With what lens the patient sees best is only one point he takes into consideration when prescribing. His aim is not only to improve vision, but also to secure the health and comfort of the patient. No case is dismissed until full ophthalmoscopic and other examination has excluded all objective signs of disorder.

If disease be present, its causation, whether local or general, has to be ascertained, and this demands a knowledge of the diseases of the other organs of the body which produce changes in the eye. The ophthalmic surgeon must have an adequate knowledge of diseases of the brain and central nervous system, of the blood-vessels and vascular system, of the kidneys, of the nose and its accessory sinuses, of the various ductless glands, &c. In fact, there is no branch of medicine which is not in close relationship with this special domain, nor is there any specialty in which a general medical knowledge is of greater importance.

The Public Interest.

It cannot be in the interests of the community to allow such grave responsibilities to pass into the hands of men with no medical training, and to hall-mark by official recognition a practice involving such dangers.

Many people in the past have gone to opticians to obtain glasses for failing vision under the impression that they are fully qualified to prescribe. Official recognition of sight-testing opticians would encourage the practice and would increase the feeling of security which our arguments show to be unwarranted. There can be little doubt that this impression has been fostered by such "qualifications" as F.S.M.C., F.B.O.A. (Fellowship of the Spectacle Makers' Co., Fellowship of the British Optical Association), &c. It is the duty of the State to guard against legislation which may in any way entail detriment to the community.

The Report is followed by an appendix giving full references to the history of the science and art of refraction. The work quoted shows that this branch of ophthalmic work has been initiated and developed by medical men, and that even at the present day the optician works and must of necessity work largely on the more purely empirical lines of the early part of the nineteenth century.

Public Health Services.

THE SCHOOL NURSE.

WHILE in this country the tendency appears to be to evolve a species of "health agent" out of a hospital-trained nurse, the tendency in America appears to be to train the nurse still further, turning her into a highly specialised medical woman. The question of the most suitable training for a school nurse is one deserving attention. It is economically unsound, for instance, that, as happens in many areas, a third person, in the shape of a care committee worker, should be the medium between the school doctor and the home. The fault lies in the unnecessarily long hospital training of the school nurse, and her almost total neglect of training in economics or social science. Dr. Taliaferro Clark, in a recently published report,[1] suggests that there should be one school nurse to 1000 to 2000 children, varying with the density of the population. When the school nursing and public health work are combined, as in rural communities, one nurse to 500 children is indicated. When there are three or more nurses in a district, one should be supervisor, and in large districts there should be an assistant supervisor for every ten nurses. Working with full-time school doctors, the nurses' duties, according to Dr. Clark, comprise detailed examination for (1) defective vision, (2) defective hearing, (3) defective and decayed teeth, (4) defective nasal breathing (mouth-breathing), (5) enlarged lymph glands (specify), (6) enlarged tonsils, (7) deformities, (8) under-nourishment, (9) suspected tuberculosis (chronic cough, underweight, pallor), (10) nervousness. So it goes on. The school nurse would seem to have duties to discharge and observations to make beyond the average equipment of many general practitioners.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

A COUNTY GROUP.

THE following table gives the principal health statistics of a group of ten counties for 1921.

Name of town.	Estimated population (R.-G.).	Death-rates per 1000 of population.				Death-rates per 1000 births.		
		Birth-rate.	All causes.	Tuberculosis.	Cancer.	Respiratory and influenza.	Infant mortality.	Diarrhœa, &c., under 2 years.	Maternal mortality in childbirth.
Cheshire ..	629,642	19·7	11·4	0·84	1·2	2·0	79	11	4·2
Derbyshire	588,362	24·5	11·2	0·79	1·0	2·3	77	10	3·1
Essex ..	910,797	20·0	10·2	0·90	1·2	1·5	59	10	2·8
East Sussex	251,851	16·7	11·5	0·80	1·6	1·6	50	3·8	4·0
Cumberland	216,691	24·5	12·4	1·0	1·1	1·9	82	15	1·5
Wiltshire ..	292,266	19·9	10·8	0·85	1·2	1·3	56	6·2	4·5
Huntingdonshire	54,670	20·7	12·6	0·90	1·7	1·7	76	10	3·5
Rutland ..	18,172	19·8	13·2	0·7	1·8	1·8	44	8·3	2·8
Cardiganshire	57,654	17·5	15·2	1·7	1·5	1·8	60	7	5·0
Guernsey (Isle of)	37,914	20·0	13·0	1·2	1·3	1·4	78	4	6·5

Cheshire.

Dr. Meredith Young considers the maternity and child welfare scheme one of the most successful public health measures ever adopted by his council, and gives credit for much of the success to his colleague Dr. Jane R. Shaw. He regrets that the antenatal part of the programme on the score of expense has to be so limited and suggests an imitation of the Bedfordshire scheme, by which the midwives are supplied with an outfit for urine samples and a card for antenatal work, and paid according to the value of the work done. Of the 249 midwives actually practising, 165 were trained, 84 untrained, and 35 were unable to take temperatures or pulses. Three municipal boroughs and eight urban districts are still outside the county scheme. A number of useful houses have been built at high cost to the State, but the need is less than half met. Housing schemes have provided 539 houses and private enterprise 825. The pollution of rivers causes serious anxiety and another skilled inspector is needed. Dr. Young gives a formidable list of the pollutions of the Dee, which is used for the water-supply of the City of Chester. Most of the serious pollutions are outside the administrative county, and Dr. Young favours the formation of a River Dee Board. Schemes for sewage disposal and water-supply are needed for many districts when money is available. Education of the public in health matters is stressed as of the utmost importance. In dealing with cancer, Dr. Young quotes with approval the views of Sir W. Arbuthnot Lane and Colonel R. McCarrison, advocating the adoption of a dietary, containing less meat and more vegetables and fruit and other measures, to prevent intestinal stagnation and the consequent absorption of toxins from the intestinal tract.

Derbyshire.

Dr. Sidney Barwise gives a decennial stock-taking in his report for 1921, and heads his introduction "Milestones." During 1891–1901 the county council pressed for sewage disposal works, and were pioneers in biological filtration. Following on this, they urged the need of water-supplies; now they press for the water-carriage system, but progress is slower. During the first decade of this century joint isolation hospitals were erected; during the second decade the county council, as the executive authority of tuberculosis, maternity, and child welfare and education, is concentrating its efforts on the beginnings of disease. The charts and tables show that under every heading except cancer the fall in the death-rate has been steady and continuous. Dr. Barwise finds no falling off in the case fatality of typhoid fever, and thinks a serum treatment might be useful. He finds that the facilities for bacteriological diagnosis and for obtaining antitoxin are insufficiently used for diphtheria. In dealing with the venereal diseases scheme, Dr. Barwise points out that the modern method of treating gonorrhœa cannot be carried out at centres in a county area, but only by the general practitioners, and he makes various suggestions for inducing the general practitioner to qualify himself for this work. He thinks more use should be made at Poor-law institutions in the treatment of venereal diseases. His conclusions are: (1) That patients who do not attend a centre or a medical practitioner for treatment should be notified; (2) that any patient who infects another person should be guilty of a misdemeanour; (3) that there should be power to commit to and detain in a Poor-law infirmary any person not receiving treatment; and (4) that the power already existing for the detention in a Poor-law infirmary of an infected prostitute should be enforced.

Essex.

Dr. William A. Bullough attributes the satisfactory infant mortality-rate in a hot dry year to (1) the education of mothers in mothercraft and infant hygiene, (2) the greater consumption of dried milk, and (3) the lessening of dust owing to the tarring of the roads. As many of the rural districts are supplied with water from surface wells, in several instances drinking water had to be carried considerable distances. All the tributaries of the River Crouch were dried up. The deep wells in Essex were not affected to any great

[1] The School Nurse: Her Duties and Responsibilities, by Taliaferro Clark, Surgeon to the United States Republic. Health Service, Public Health Reports, Sept. 8th, 1922, vol. xxxvii., No. 36.

extent. Owing to the housing shortage, old condemned cottages are being renovated. Dr. Bullough draws attention to the position created by motor ambulances, and points out that by isolation hospitals the whole population could be served by less than half of the existing hospitals. An interesting feature of the report is the description of the progress of the scheme for a combined medical service. Under this scheme it is hoped to avoid overlapping and secure greater efficiency by effecting an arrangement between the county council and the local sanitary authorities, in accordance with which each local medical officer of health will become an assistant county medical officer for the duties of tuberculosis officer, school medical inspector, child welfare officer, inspector of midwives, or venereal diseases officer.

East Sussex.

Mr. A. G. R. Foulerton reports that about 75 per cent. of the births were attended by midwives in 1921. The midwives sent for a doctor in 237 cases out of 2169. The county council has made arrangements with the Brighton and Crowborough hospitals for the admission of difficult cases; 37 such cases were admitted, 15 during labour, 16 on account of difficulty detected by antenatal observation, and 6 on account of unfavourable home conditions. The small number of cases is due to the fact that unfortunately only two hospitals are available.

Cumberland.

Dr. F. H. Morison includes in his report an interesting account of the Englethwaite Industrial Colony for Tuberculous Patients. The county council acquired Englethwaite Hall, about six and a half miles from Carlisle, in August, 1919. The hall has been adapted as an administrative block, service additions have been erected, and shelters provided for the patients. All, except one, of the staff have suffered from tuberculosis. In 1920–21, 32 colonists were admitted; in 1921–22, 63. Of the 63 colonists, 31 were Cumberland ex-Service men, 24 ex-Service men from other areas, and 8 were Cumberland civilians. The industries are market gardening, poultry-keeping, clog-making, joinery, and making of artificial dentures. Orders are obtained from various public bodies in Cumberland. It is proposed to increase the beds from 40 to 75 by the provision of 35 additional shelters and extra service accommodation at a cost of £4000. After the first two months a payment is made for work done, part of the pay being retained for a leaving bonus. Patients are made acting foremen and are eligible for vacancies on the staff. The expenditure for 1921–22 is given as £7453 (apparently exclusive of the salary of the medical superintendent) and the capital cost up to date as £15,800. The progress of the experiment will be watched with much interest, as this is one of the first colonies undertaken by a statutory authority as a charge on public funds.

Wiltshire.

Dr. Claude E. Tangye points out that in these days of motor ambulances the areas of existing isolation hospitals can be enlarged. At present some districts are without accommodation for small-pox or other infectious diseases, while in other small districts expensive small hospitals, fully staffed, are waiting for a few patients. Up to the present, however, the county council has not been able to arrange a scheme for pooling the infectious hospital accommodation of the county. It is interesting to note that Dr. Tangye's and Dr. W. A. Bullough's ideas are mutually confirmatory.

Huntingdonshire.

Dr. C. B. Moss-Blundell reports that the county council opened a sanatorium at Wyton, three and a half miles north-east of Huntingdon in June, 1920, for females of all ages and males up to 14 years. There are 98 beds, and patients are admitted from outside the county at a charge of £2 15*s.* a week for adults and £2 2*s.* a week for children.

Rutlandshire.

Dr. Christopher Rolleston is sanguine as to the good results to be expected from the systematic immunisation of all those found to be susceptible to diphtheria by the Schick test. He thinks medical inspection should be extended to adults, and cites with approval the action of American insurance companies in insisting upon a yearly medical examination of their policy-holders. The examination is followed by advice as to diet, exercise, &c., and treatment. The council have no health visitor. There is one school nurse who, to some extent, acts as a health visitor. Another nurse is badly needed. Dr. Rolleston records a case of anthrax, evidently contracted from an infected shaving-brush. The patient was treated by Sclavo's serum and made a good recovery. The new houses are beyond the means of the farm worker with a family. Only 7 out of 52 houses completed under schemes during the year are occupied by tenants engaged in agriculture.

Cardiganshire.

Dr. L. Meredith Davies mentions that proceedings were taken against the Lampeter Urban Council for pollution of the River Dulas to such an extent that the fish were poisoned. The explanation furnished was that in a certain length of sewer sewage accumulated in dry weather till a storm washed it down in concentrated form. An agreement as to flushing was come to. It will be interesting to hear how the fish fare after the regular flushing is instituted.

Guernsey.

Dr. H. Draper Bishop mentions that the cattle on the island are free from tuberculosis. Practically speaking human tuberculosis contracted from cattle comes under the heading "other tuberculosis"—i.e., tuberculosis other than that of the respiratory system. It is a matter of regret that the population is too small to make any deductions as to the effect of the tubercle-free cattle on the fatality of "other tuberculosis." During 1921 the deaths from "other tuberculosis" were eight (making a rate of 0·21), five from meningitis, one of which was during the 2 to 5 age-period, and three from peritonitis, all over 5 years. Dr. Bishop reports that during the last five years the maternal mortality from childbirth has been 5·7 per 1000 births for the whole quinquennium and 6·5 for 1921, and that an improved midwifery service and a maternity hospital are badly needed.

SCHOOL MEDICAL SERVICE.

Stirling.

STIRLING county has now a classified list of 298 mentally and physically defective children, and during the year 1921 the education committee had under consideration a scheme for dealing with these children; for reasons of economy the committee has decided not to proceed with the provision of a special school, but to arrange for special classes in existing schools. During 1921, 8295 children were examined in the routine examination in addition to 1258 special cases. It was found that the doctors saw on an average seven children per hour. Of the cases seen, 7·5 per cent. required treatment. The heights and weights showed no great difference from those taken last year, but dirty heads appeared to be more frequent. Of 1615 children with defective vision glasses were prescribed for 557, and 165 were otherwise treated; 141 were awaiting treatment. The amount of ringworm here was small and the number of scabies cases only half that of last year. There were no cases of very bad nutrition, and only 1·69 per cent. of those examined were below average. Markedly enlarged tonsils were found in 2·10 per cent. of those examined, and only one case of suppurating glands was found, though 77 had cicatrices. There were 85 cases of defective speech, including 25 stammerers. A survey of children employed out of school hours showed no evidence of the employment being detrimental to the children.

Nottinghamshire.

Practically half the children in this county underwent medical examination during the year, and out of over 19,600 3000 were found with defects. Dr. Handford, commenting on the increase of cleanliness (in 72 per cent. of girls the hair is now free from nits), says that unfortunately the improvement in this direction is not yet sufficiently firmly rooted to be free from the risk of relapse on the relaxation of supervision. Nurses paid 2537 home visits in this connexion, in addition to carrying out 26,306 individual head inspections at school. The classification of the extent to which the heads of these children are infected shows a marked decrease since 1912 in the number with "very few," "few," and "many" nits, and a decrease in the number with "very many" nits until last year, when the percentage of the last class was nearly five times that of the previous year. Of 933 children with errors of refraction, there were 212 cases of squint. Myopia of 5 diopters or over was present in 17 cases. These children are examined at frequent intervals and their school work is closely watched. There were 363 children retarded two or three years, and Dr. Handford appeals for special classes for them before taking the irretrievable step of certifying them as feeble-minded.

The Services.

ROYAL NAVAL VOLUNTEER RESERVE.

Surg. Lt. F. P. Nicholas to be Surg. Lt.-Comdr.

ROYAL ARMY MEDICAL CORPS.

Lt. (temp. Capt.) W. Y. Eccott to be Capt.

ARMY RESERVE OF OFFICERS.

The undermentioned cease to belong to the Res. of Off. on account of physical unfitness: Lt.-Cols. E. Brodribb, D. E. Curme, J. D. G. Macpherson, J. P. J. Murphy, and H. K. Palmer; Maj. and Bt. Lt.-Col. F. W. Lamballe; and Capt. T. J. Crean.

ARMY DENTAL CORPS.

Capts., late Spec. List, to be Capts.: H. Broughton and W. H. D. Quinn.

TERRITORIAL ARMY.

P. Hayes to be Lt.

Maj. (Bt. Lt.-Col.) R. T. Turner, having attained the age limit, is retired, and is granted the rank of Lt.-Col., with permission to wear the prescribed uniform.

Capt. H. B. Whitehouse resigns his commn. and retains the rank of Capt.

The undermentioned officers relinquish their commns. and retain their rank except where otherwise stated: Lt.-Cols. P. S. Hichens, D. A. Cameron, and G. C. Taylor; Majs. T. L. Fennell (with permission to wear the prescribed uniform); Capts. A. Rankine, C. M. Nicol, F. R. Eddison, H. J. A. Longmore, C. F. M. Saint, A. C. Alport, G. W. Shore, and W. Briggs (all granted the rank of Maj.); Capts. J. Green, J. C. W. Methven, C. F. Walters, J. M. Plews, A. A. McKenzie, C. S. O'Hagan, L. T. Challenor, C. C. Boyle, H. Vallow, I. J. Davies, L. B. Cane, W. L. Holyoak, E. R. Flint, W. Johnston, H. G. Ludolf, W. Longley, W. W. N. King, L. A. Celestin, N. H. Hill, and J. Chalmers.

Sanitary Company: Maj. J. Grounds and Capt. J. Inglis resign their commns. and retain their rank.

TERRITORIAL ARMY RESERVE.

Lt.-Col. T. A. Green and Maj. T. P. Puddicombe, from General List, to be Lt.-Cols.

Capt. N. S. Jeffrey, having attained the age limit, is retired, and retains the rank of Capt.

The undermentioned relinquish their commns. and retain their rank: Lt.-Col. W. A. Benson; Majs. A. T. Sissons, C. B. Whitehead; Capts. J. A. L. Magee, H. J. Shanley, H. P. Thomason, P. McEwan, and A. H. Savage (Sanitary Company).

ROYAL AIR FORCE.

C. V. D. Rose is granted a short service commission as a Flying Officer.

E. F. N. Currey is granted a temporary commission as a Flight Lt.

Correspondence.

"Audi alteram partem."

PRESENT-DAY OUTLOOK ON TUBERCULOSIS: ÆTIOLOGICAL AND THERAPEUTIC.

To the Editor of THE LANCET.

SIR,—In his retrospect under this title in your issue of Dec. 9th, Dr. Percy Kidd has sketched admirably the main features of the evolution—since the seventeenth century onwards—of our present-day conception of tuberculosis. The recognition of the essential unity of all its forms places the clinician of to-day on a vantage ground of inestimable importance in his outlook on the protean manifestations of tuberculosis. Dr. Kidd's historical résumé is so excellent, that it is with some hesitation that I venture to recall some cognate considerations.

In most of the current presentations of tuberculosis from the clinical side, there seems to me lacking sufficient reference to the results of animal experiment in the interpretation of the varying features of the disease. In teaching, it has long been my custom to direct the approach from that point of view. I have been much impressed by the interest awakened in students—undergraduate and post-graduate—by the correlation of clinical evidence and experimental results. The primary lesion (sore), initial latent period, successive involvement of groups of glands and viscera, systemic intoxication, and recurring periods of apparent latency are illustrative and suggestive. The so-called "phenomenon of Koch" throws a flood of light on the problems of recurrent exacerbations, immunity, and re-infection.

Continued study along those lines is a sound corrective to limited vision in prognosis and treatment. It calls for pause as to the scientific sanction for much of the local (operative) treatment at present largely in vogue. The recognition—all too easy—of the gross and obvious—e.g., in an enlarged gland or local exudate—and the immediate and apparently satisfactory results obtainable by operation have tended to obscure the larger significance of the infective process. Local (operative) interference can seldom have more than local effect. For the greater part, whether on glands in the track of a more recent spreading process or, as lately urged, on obsolescent calcareous glands, operation is open to serious criticism. Accumulating evidence is in favour of conservatism.

While the pen is still in hand, let me re-enforce another therapeutic consideration. The rôle assigned to tuberculin continues to be unduly clouded by the disappointment of exaggerated hopes, which followed Koch's early announcement and the intemperate and hasty statement of enthusiast partisans. As one who has continuously employed tuberculin in many different ways since its introduction in 1890, I am unable to follow the disparaging tone in which reference is frequently made to its place in tuberculo-therapeutics. In innumerable cases it has served me well. Nor has serious danger ever emerged. Whether exhibited subcutaneously or percutaneously (by inunction), as I have been in the habit of teaching for the last dozen years, tuberculin has given results of very striking character. Carefully arranged controls have satisfied me that the results cannot be interpreted otherwise than as directly due to the agent employed. I have before me the records of many cases—for the most part of exceptional difficulty—which collectively yield remarkable testimony. The cases include tuberculosis of most varied type—in lung, larynx, abdominal cavity, genito-urinary organs, glands, skin, &c. Large glandular aggregations have gradually disappeared, old discharging sinuses (as many as 17 in one instance) have closed, formidable exudates have been absorbed in a great variety of situations (abdominal, genital, and other organs).

Apart from definite arrest of the disease as a whole, which may not always be possible, the disappearance

of graver and more distressing symptoms arrests attention. Thus patients with extensive renal tuberculosis, passing urine as often as 48 times per diem, have under the treatment been restored to normal frequency. Blood, pus, tubercle bacilli, present in the urine, have disappeared. Many of the patients, during the greater part of the treatment, continued their ordinary life less or more completely, the local improvement becoming speedily associated with steady gain in flesh and condition. That the effects are lasting is evidenced by the records in numerous instances which extend over 10, 15, and 20 years.

It would be clearly foolish to expect uniformity of good result. Disappointments necessarily occur. But they form the minority. In proportion as efficient treatment has been maintained for a sufficient length of time—a most important postulate—good results have been the rule. With a frankly sceptical attitude towards the interpretation of therapeutic results, I feel satisfied from close and prolonged observation that tuberculin is a specific remedy of remarkable significance in the treatment of tuberculosis.

I am, Sir, yours faithfully,

R. W. PHILIP.

University of Edinburgh, Dec. 9th, 1922.

JUSTIFIABLE FŒTICIDE.

To the Editor of THE LANCET.

SIR,—In your issue of Dec. 2nd (p. 1182) under this heading occurs the following statement: "It seems that the doctor in certain and possible circumstances has not only the right but is under an obligation to kill the child if thereby he can more certainly safeguard the life of the mother." THE LANCET has undoubtedly many Catholic readers besides the present writer, but you will find none of them agree with this statement. The teaching of the Church with regard to craniotomy is quite clear and definite, *it is not permissible under any possible circumstances.* "In scholis Catholicis tuto doceri non posse, licitam esse operationem quam craniotomiam appellunt." This decision was given at Rome, August 19th, 1888, and repeated with the Papal approbation on July 24th, 1895.—I am, Sir, yours faithfully,

DOM FRANCIS IZARD, O.S.B., M.R.C.S., L.R.C.P.

Abbaye de St. Benoit, Maredsous par Maredret
Prov de Namur, Belgique, Dec. 5th, 1922.

*** Dom Francis Izard writes from a Benedictine House, famous alike for its learning and its study of plain chant. The Papal decision is well known, but surely, to say that it is not safe to teach a doctrine is not the same thing as to prohibit such teaching in all possible circumstances. We can imagine situations when the prohibition quoted by Dom Francis Izard would lay a heavy responsibility indeed upon the shoulders of medical men.—ED. L.

ERGOT AND THE FUNCTION OF THE BRITISH PHARMACOPŒIA.

To the Editor of THE LANCET.

SIR,—In the report of the recent discussion on ergot, I am represented as having mentioned that a large number of prescriptions were "analysed officially."[1] I regret that this erroneous statement should have been substituted for what was actually said—viz., that "in not one of these prescriptions did any official preparation of ergot appear." Proprietary preparations of ergot were mentioned in an extremely small number of the prescriptions, but these were outside the scope of the discussion.

While I am in cordial agreement with many of your editorial remarks on the Function of the British Pharmacopœia,[2] I am not aware of having said anything about a conservative view held by the editors, or of their desire to retain unchanged preparations regarded by pharmacologists as inert. I fear that you credit the editors with greater power, or influence, than they actually possess, since they work under the control of the Pharmacopœia Committee of the General Medical Council, who, in the preface, have expressed indebtedness for much valuable assistance from a very large number of loyal workers. Probably every teacher of pharmacology and therapeutics in the United Kingdom, and every writer of a text-book on these subjects, has submitted his views through one or more of the authorities consulted by the Pharmacopœia Committee. The concluding paragraph of your leading article suggests that the policy of the British Pharmacopœia should be extended. Mention is made of "various forms of proprietary articles," &c., "mostly unknown to hospital practice." It would be interesting to ascertain the views of the owners of proprietary articles on such proposed inclusion in the British Pharmacopœia. Further, if these articles are really "mostly unknown to hospital practice," may not the responsibility rest with those who have to watch over the ever-growing expenses of the dispensary?

I am, Sir, yours faithfully,

Harley-street, W., Dec. 16th, 1922. NESTOR TIRARD.

[1] THE LANCET, Dec. 16th, p. 1277, line 18 from top.
[2] Ibid., p. 1285.

DORMANT FILARIAL INFECTION.

To the Editor of THE LANCET.

SIR,—The note by Dr. K. Playfair on this subject in THE LANCET of Sept. 30th raises several interesting points. In the first place it would be useful to learn which of the microfilariæ was present in this case and how it was possible, if they were not numerous, to distinguish between *Mf. diurna* and *Mf. bancrofti*. I am not disputing the existence of a double infection, for it seems to be commoner than a single infection, but I have not yet been able to hear of a method by which in the slighter infections a reliable differential diagnosis can be made.

The reason why "scant attention is paid to the blood picture" in most cases is quite easy of explanation, and I would like to ask Dr. Playfair what exact significance he would attach to the blood picture in a case of filariasis in which the usual parasites, such as ankylostomes, schistosomes, tapeworms, and trichinæ, are present also. It seems rare to find a case of filariasis uncomplicated by the presence of one, if not all, of these parasites, not to mention a host of others which may or may not cause an eosinophilia.

I am, Sir, yours faithfully,

N. A. DYCE SHARP.

Kaduna, Nigeria, West Africa, Nov. 16th, 1922.

ANTRAL SUPPURATION AND DENTAL INFECTION.

To the Editor of THE LANCET.

SIR,—The condensed report in your issue of Dec. 16th of my remarks at a recent meeting of the Odontological Section of the Royal Society of Medicine does not adequately convey my meaning. I quoted Grunwald's statement that out of 98 cases of antral suppuration only 14 were definitely due to dental infection; out of 101 of my own cases, 12 were of dental origin. Antral suppuration of dental origin can be distinguished clinically from that of nasal origin: (1) By the presence of an alveolar abscess or pyorrhœa of certain teeth. (2) By the fact that the antrum is the only cavity of the nose involved. (3) By the character of the pus, which is very foul, smelling strongly of *B. coli*, and has a greyish sandy deposit. On the other hand, antral suppuration of nasal origin is more chronic and produces muco-pus of slight or fusty odour. (4) By the fact that the dental antrum is more easily cured by drainage than that of nasal origin. Dr. P. Watson-Williams spoke of nasal antral infection producing an apical abscess of the teeth. I have never seen this, and would call attention

to the fact that apical abscesses without caries occur just as commonly in the mandible as in the maxilla. Neither do I believe that a dental cyst can arise from a nasal infection. A cyst of such an origin would certainly not be a dental cyst. I agree with Mr. A. T. Pitts that dental cysts should be drained into the mouth. Opening into the nose and antrum should be carefully avoided because the cyst lies well below the floor of the nose; hence drainage into the nose is not good and a fistula between the mouth and nose may result. The cyst encroaches on but does not invade the antrum. As to mouth-breathing, I have frequently seen patients with as free and as patent a nose as a Cunard funnel, but yet they are mouth-breathers. Dental surgeons have been more successful than the laryngologists in treating the habit of mouth-breathing by the use of the rubber mouth screen.

I am, Sir, yours faithfully,

EDWARD D. D. DAVIS.

Dec. 18th, 1922.

DISEASES OF THE HEART.

To the Editor of THE LANCET.

SIR,—Will you oblige me by publishing the following comments in regard to a criticism of my book, which appeared in last week's issue of your valuable journal.

1. In regard to T wave, your reviewer says: "On p. 24 this is said to occur in normal cases; on p. 107 it is said to be of grave significance." It is obvious that the reference to T on p. 24 is a misprint—it should read L. III instead of L. II. Your reviewer further proceeds as follows: "Whilst its (T wave) suggested association with subacute bacterial endocarditis is surprising." This is a mis-statement altogether on the part of the reviewer. Under the heading of "Electrocardiogram" I said: "In all cases I have so far examined T wave in the second lead was inverted." It is simply a statement of fact and no kind of inference whatsoever was made.

2. Your critic complains that I have made no reference to radiology, in a book which does not deal with disease of the blood-vessels. Can he tell me what is the practical value of radiology in heart disease? Your reviewer complains, also, that I have not mentioned the exercise test. On p. 40 I mention the principles on which the test is based. I have not given a full account of it, because this test is of no value for a practitioner who only occasionally has the opportunity of seeing a heart case. For the test to be of value one must be acquainted with the normal standard under a great variety of conditions. The cardiac efficiency can best be estimated by a few direct questions to the patient, as Mackenzie has pointed out long ago.

3. In your reviewer's opinion apparently a split of R and S in lead II is an infrequent occurrence in normal cases. May I refer him to the latest book of Sir Thomas Lewis?

4. As to whether arterio-sclerosis is a common complication in Graves's disease, &c., many of your readers will be able to form an opinion of their own. Is not sclerosis of the aorta, the coronary arteries, and valves frequently found in the post-mortem room in cases of Graves's disease?

5. The explanation of thrills is not a theory originated by me. It is an explanation widely accepted on the Continent. "Minute" is a misprint; should read "second."

6. I tried as much as possible in my book to expound views which found general recognition. I have, however, not entirely suppressed my individual opinion. I refer to it sparingly. I agree with your reviewer that the sentence "It is a moot point whether auricular fibrillation aggravates a disease with which it appears or not" is unorthodox. But the orthodox view has never been supported by evidence. Auricular fibrillation is a symptom, not a disease. It is only necessary to follow up cases of mitral stenosis, with or without auricular fibrillation, in order to convince oneself that the prognosis is not strikingly worse in the former instances. Again, I recommend your critic to ponder on the fact that attacks of angina frequently disappear with the appearance of auricular fibrillation. I need only mention that the article in which the doctrine was expounded that by relieving the strain on the heart muscle the weak contractions of a failing heart are beneficial, &c., was favourably commented on by THE LANCET some years ago.

7. The thing which troubles your critic most is that the book does not convey a true sense of proportion. But the only evidence he is able to produce for his thesis is the fact that I have devoted a few lines to a method of estimating venous pressure and the plethysmograph, whilst I have left out a test and method of examination which has no practical value whatsoever.

Your reviewer has gone out of his way to make out a case against my book. In the interests of fair play it would be well if reviewers appended their signatures to their articles.—I am, Sir, yours faithfully,

Liverpool, Dec. 16th, 1922. I. HARRIS.

*** We must point out that the misprint mentioned in paragraph 5 is the author's. Nor dare we take up the position that favourable comment some years ago in our pages should exempt anything from future criticism. We are happy to publish Dr. Harris's letter.—ED. L.

ABSORPTION OF CARBOLIC ACID THROUGH THE SKIN.

To the Editor of THE LANCET.

SIR,—The case of rapid and fatal absorption of carbolic acid through the skin, related in THE LANCET of last week by Drs. W. R. M. Turtle and T. Dolan, induces me to relate a case of severe carbolic poisoning by inhalation of the fumes alone without any (or rather, only negligible) burns being present, and which, although very alarming, happily recovered. A youth employed at a chemist's shop dropped a winchester of crude carbolic acid. He immediately got a cloth and bent down to mop up the fluid. Within a few minutes he fell to the ground unconscious and was immediately dispatched to hospital where I saw him less than 30 minutes from the accident. He was absolutely comatose, cyanosed, stertorous, with a subnormal temperature and a thready, rapid pulse. The very slightest burns were noted on the right hand, and nothing present in the mouth. The breath was strong of the smell of carbolic acid, and the mouth and nose covered with froth. He was cold but not clammy, and generally livid. The prognosis looked extremely grave. As I had not any idea of treatment of such a case beyond the general lines of stimulants, &c., I thought that as the symptoms were due to an excess of acid that an alkali might be of use. I therefore gave him intravenous saline, to which was added 2 drachms of sodium bicarbonate per pint, and infused 2 pints of this solution. The effect was certainly marked. The breathing (assisted by the use of oxygen) improved almost at once, but did not fully recover for some two or three hours. The coma lightened, but unconsciousness remained for six hours. The lividity of the face, and especially about the lobes of the ears, remained noticeable for 24 hours. The patient recovered fully in two days, and did not show any signs of chest complications. The first specimen of urine was kept and tested for the presence of carbolic acid and proved positive. I did not test to see how long a period elapsed before the urine was free.

I cannot claim anything for the use of intravenous sodium bicarbonate as a scientific procedure in cases of carbolic acid poisoning, but my observations in the case related certainly impressed me at the time in the definite amelioration of the extreme symptoms in a short time. I feel sure that carbolic acid poisoning by inhalation only must be of rare occurrence.

I am, Sir, yours faithfully,

R. ECCLES SMITH, O.B.E., F.R.C.S.E.

Barry, Glam., Dec. 17th, 1922.

THE MERITS OF PROPORTIONAL REPRESENTATION.

To the Editor of THE LANCET.

SIR,—The methods of counting votes in any P.R. election are not puzzling to anyone who will take a little trouble to understand them. Dr. S. C. Lawrence[1] has failed to realise that the electors have *one vote* and *one vote only*. This vote is indicated by the marking of preferences—but those preferences are not votes. They are instructions to the returning officer to give the particular elector's vote to the candidate marked 1; if such candidate can be elected without that vote counting, or if the candidate is hopelessly out of the running to give the vote to the candidate marked 2, and so on. In this particular election the votes cast for Dr. Lawrence were 90—neither more nor less. These 90 were *not plumpers;* only one of them was, as the result sheet shows in the second count. Certainly, these 90 votes were first preferences, but a "plumper" is a paper on which *only* a first preference is shown. Out of the total votes (2946) cast, Dr. Lawrence received 90—i.e., 3·05 per cent.—and was at the bottom of the poll on the first count. He was therefore declared defeated, and his 90 papers were re-examined and distributed in accordance with the preferences marked upon them. The small group who supported Dr. Lawrence, therefore, did not lose their votes with the defeat of their first choice. One of them did, as he marked no further preference. As against Dr. Lawrence's 3·05 per cent. the successful candidates received respectively on the first count 32·85 per cent. and 27·66 per cent., and on the completion of the election they had received between them over 66·67 per cent. of the total votes cast. I am quite certain that if Dr. Lawrence will give say an hour's study to a proper description of the P.R. methods he will be quite satisfied that it accurately and truly reflects the opinions of the electors as expressed by their ballot papers. Will you permit me to add that neither directly nor indirectly was I interested in any of the candidates for the Combined Universities Constituency, but I am interested in P.R.[2]

I am, Sir, yours faithfully,

OSCAR M. WIHL, B.A., LL.B. Cantab.

Manchester, Dec. 14th, 1922.

[1] THE LANCET, Dec. 2nd, 1922, p. 1195.
[2] The Reform of Political Representation, by J. Fischer Williams, C.B.E., published by John Murray, 2s. 6d., gives full information on P.R.

WOMEN SANITARY INSPECTORS AND HEALTH VISITORS ASSOCIATION.—This association is holding its second winter school for health visitors and school nurses at King's College, Strand, from Dec. 28th, 1922, to Jan. 11th, 1923. Applications, accompanied by stamped addressed envelope, should be made to the Secretary, Miss C. I. Macdonald, at 5, York Buildings, Adelphi, London, W.C.

NEWCASTLE-UPON-TYNE AND NORTHERN COUNTIES MEDICAL SOCIETY.—A meeting of this Society was held on Dec. 7th, with Prof. Stuart McDonald, the President, in the chair. Sir Humphry Rolleston, who delivered the annual address, chose as his subject High Arterial Blood Pressure, and outlined the observations from the earliest records to the present time, passing to a critical analysis of the causes and treatment. Prof. D. Drummond proposed a hearty vote of thanks to the lecturer: this was seconded by Dr. Andrew Smith and carried with acclamation. In the evening the annual dinner took place, 130 members and guests being present. The guest of the evening was proposed by Prof. T. Beattie. Sir Humphry Rolleston, in his reply, referred to the famous medical men who had originated in the Newcastle district, including Akenside, Addison, and Snow. The Society was proposed by Prof. Arthur Robinson, and responded to by the President. Dr. R. A. Bolam proposed the health of the other guests of the Society—viz., Prof. Drummond, Admiral Slayter, and Mr. S. Dunstan, and Admiral Slayter replied.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Prorogation of Parliament.

THE Royal Assent was given on Friday, Dec. 15th, by Royal Commission to the Appropriation Act, the Trade Facilities and Loans Guarantee Act, and the Importation of Animals Act. The Lord Chancellor afterwards read the King's Speech proroguing Parliament until Tuesday, Feb. 13th.

HOUSE OF COMMONS.

WEDNESDAY, DEC. 13TH.

Education of Physically Defective Children.

Mr. MCENTEE asked the President of the Board of Education whether he was aware that a number of physically-defective children within the area of the Walthamstow education area who were of school age were now being denied facilities for elementary education: that application was made to his department in April, 1921, by the said authority to sanction a scheme to enable them to provide the education which under Section 20 of the Education Act, 1918, it was their duty to provide, and that the plans submitted were generally approved by his department, but sanction to proceed with the scheme was withheld on the ground of the necessity for economy; that the authority named was one of the most economical in the Greater London area; and whether he would now sanction the scheme of this education authority.—Mr. WOOD replied: I am aware that there is some deficiency in the provision for physically defective children in Walthamstow. I have not been able to enter closely into the merits of the case, but I am prepared to give it further consideration.

The Use of Insulin.

Sir WILLIAM BULL asked the Minister of Labour, as representing the Ministry of Health, whether he was aware that the Council of Medical Research was throwing obstacles in the way of the general production of a remedy for diabetes known as insulin; if, seeing that knowledge of the remedy had long passed the experimental stage, he could arrange that the manufacture should be left to private enterprise; and whether he was aware that a system of licences granted by the Council of Medical Research to authorised persons would afford ample protection to the public and make the remedy available much sooner than by keeping it a Government monopoly.—Sir MONTAGUE BARLOW replied: The answer to the first part of the question is in the negative. So far from creating obstacles the Medical Research Council are doing everything in their power to accelerate the production and use of insulin in the treatment of diabetes. As regards the second part of the question my right hon. friend is under a misapprehension. His assertion that the remedy has passed the experimental stage is not in accord with the experience of other countries or the best scientific opinion here. There is no question of any Government monopoly, and the suggestion which he makes as to manufacture is on the lines which the Medical Research Council have been, in fact, diligently pursuing for some time past.

Hardship under Dentists Act.

Mr. THOMAS HENDERSON asked the Minister of Labour, as representing the Ministry of Health, whether he was aware that Mr. James Telfer, of 29, Castlehill-road, Ayr, was practising dentistry for five years before joining the Army; that he was wounded and taken prisoner and only arrived home after the armistice; that he had been continually in and out of hospital up to last May, and had undergone three operations; and that, although he had been practising dentistry since last May, his application for registration under the Dentists Act had been refused, on the ground that he had not practised since his discharge; and whether, as this man could not possibly practise during the time he was in hospital owing to war service, steps would be taken at once to remove the injustice arising in this case.—Sir M. BARLOW replied: The Minister of Health has no jurisdiction in regard to admissions to the Dentists' Register, but inquiry will be made into the facts of this case and the result communicated to the hon. Member.

Notification of Small-pox.

Mr. DUNNICO asked the Minister of Labour, as representing the Ministry of Health, whether he was aware that there was considerable uneasiness in the minds of the public by reason of carelessness on the part of certain authorities whose duty it was to prevent the spread of small-pox; and that, in addition to the case at Poplar workhouse where a man suffering from this disease was permitted to mingle freely with the other inmates for a fortnight, thereby infecting many other persons, that a well-known school was closed

on account of an outbreak of small-pox, but that no steps were taken to trace the contacts or to notify the respective medical officers of the areas in which many of the boys resided; and whether he would take immediate action to safeguard the public against this carelessness and to assure them that the necessary steps to prevent the spread of this disease were being rigidly enforced.—Sir M. BARLOW replied: My right hon. friend is not aware that there has been any carelessness on the part of the authorities whose duty it is to prevent the spread of small-pox. The school referred to is presumably the school in London which was recently closed because one of the pupils had contracted small-pox at home. My right hon. friend is satisfied that all requisite steps were taken by the authorities concerned to trace the contacts of this case and to notify the medical officers of the district in which the contacts resided.

Insured Persons and Private Medical Treatment.

Mr. GOULD asked the Minister of Labour, as representing the Ministry of Health, the procedure which could be adopted by insured persons who received medical attention from their own private doctor to obtain a return of that portion of their insurance contribution which was allocated for the purposes of treatment by panel doctors.—Sir M. BARLOW replied: An insured person who desires to be treated by a practitioner not under agreement with an insurance committee may apply to the insurance committee for the area in which he resides for permission to make his own arrangements. If permission is granted a contribution will be made by the committee towards the cost of the treatment so obtained. The insurance committee has full discretion in considering applications of this nature. There is no provision in the Acts for any reduction in the contribution payable by or in respect of an insured person on the ground that he does not take advantage of the arrangement made under these Acts to provide him with medical treatment.

Panel Practitioner's Remuneration.

Mr. GOULD asked the Minister of Labour, as representing the Ministry of Health, whether there is any limitation to the number of insured persons on a panel doctor's list; what is the average amount of remuneration received by doctors on the panel list; and whether, on the whole, insured persons were receiving the same consideration and attention as private patients.—Sir M. BARLOW replied: The limit of the number of insured persons whom an insurance practitioner may have on his list is fixed for each area jointly by the Insurance Committee and the Medical Panel Committee. No practitioner working single-handed may have more than 3000 persons on his list, and in a considerable number of areas a lower maximum of 2500 or 2000 has been fixed. Taking the country as a whole the average number of insured persons per doctor is approximately 1000 and the corresponding remuneration, including mileage payments, would be slightly less than £500 a year. Insurance practitioners are expected to give the same standard of treatment, within the scope of their terms of service, to insured persons as they would to private patients.

Vaccination.

Sir HARRY BRITTAIN asked the Minister of Labour, as representing the Ministry of Health, whether, in the case of an epidemic of small-pox as at present, it was the policy of his department to encourage the precaution of vaccination.—Sir M. BARLOW replied: Yes, Sir.

THURSDAY, DEC. 14TH.

Methods of Medical Boards.

Mr. SITCH asked the Minister of Pensions if he had received complaints from ex-Service men regarding the methods adopted by medical boards respecting their examinations; whether he was aware that numbers of men who had recently appeared before these boards complained that proper examination did not take place; and whether, in view of the serious nature of these complaints, he would institute an inquiry with a view to allaying suspicion and distrust.—Major TRYON replied: I have received some complaints of this nature which, I am glad to say, have proved on investigation to be without substance. Full instructions have been given to medical boards in order to ensure an adequate examination of all cases, and the work of the boards is subject to periodic inspection by officers from the headquarters of the Ministry. I am satisfied that the medical boards discharge their duties with efficiency and at the same time with every consideration for the men.

Schools for Physically Defective Children.

Mr. SHORT asked the President of the Board of Education the number of schools now provided for the education of physically defective children; and what increase had taken place since 1914.—Mr. WOOD replied: There are now 199 certified schools for physically defective children, of which 108 have been certified for the first time since April 1st, 1914.

Feeding of School-children.

Mr. ROBERT RICHARDSON asked the President of the Board of Education what local authorities besides those of Hull, Portsmouth, and Sunderland exceeded between April and August of this year the limit of expenditure upon school feeding laid down by the Board for the whole of the financial year 1922–23.—Mr. WOOD replied: The only period of the current financial year for which I have figures of the net expenditure of local education authorities upon provision of meals is the period April 1st to Nov. 30th. During that period the net expenditure of 47 local education authorities exceeded the sums specified for each of them in the Board's first allocation. The names of the authorities concerned are as follows:—

Barrow-in-Furness, Birkenhead, Bradford, Burnley, Bury, Chester, Derby, East Ham, Halifax, Kingston-on-Hull, Leicester, Portsmouth, Preston, Reading, Smethwick, Sunderland, West Ham, West Hartlepool, York, Ashton-under-Lyne, Chorley, Colne, Dukinfield, Ilkeston, Keighley Lancaster, Macclesfield, Stalybridge, Taunton, Workington, Barking Town, Edmonton, Enfield, Erith, Felling, Hebburn, Kettering, Radcliffe, Tottenham, Wood Green, Willesden, Brecon, Monmouthshire, Cardiff, Abertillery, Bath, Leigh.

Mr. ROBERT RICHARDSON asked the President of the Board of Education if the Board had advised local education authorities not to feed school-children whose malnutrition was due to temporary or chronic destitution of their parents; and why, seeing that the Education Act, 1921, did not permit differentiation among the many causes of malnutrition, this action had been taken.—Mr. WOOD replied: I find in Section 84 of the Education Act, 1921, no authority for thinking that it was the intention of Parliament that a considerable part of the burden of the relief of destitution should be shifted on to the education rate and the vote of the Board of Education. I have seen no reason to depart from the principles of administration laid down in this respect by the late Government and my predecessor.

Detention of Able-bodied Lunatics.

Mr. FREDERICK ROBERTS asked the Minister of Labour, as representing the Ministry of Health, whether it was the custom of the Lunacy Department to endorse the detention for a period of many years of able-bodied asylum inmates who could not be proved to be dangerous and unfit to be at large, for the sole reason that no friend or relative had been available to apply for their discharge; and whether, since it would result in a saving of the rates that some provisional arrangement should be entered into to facilitate the return of such inmates to a condition of self-supporting and self-respecting life again, steps could be taken to that effect.—Sir M. BARLOW replied: The detention or discharge of patients in public asylums rests with the visiting committees, and no question arises of the endorsement of their decision by the central authority. It is not the case that asylum inmates, such as the hon. Member describes, are detained for the sole reason that they have no friends. If a patient is sufficiently recovered to be able to look after himself, he would be discharged. On the other hand, a patient partially recovered could only be discharged if he had friends or relatives who were able and willing to take care of him.

Deaths from Small-pox.

Mr. TREVELYAN THOMSON asked the Minister of Labour, as representing the Minister of Health, the total number of deaths occurring this year from small-pox amongst those vaccinated, and also amongst those not vaccinated, and the percentage rate of deaths to cases in each class.—Sir M. BARLOW replied: The total number of deaths from small-pox occurring during the first 11 months of this year was 27. Twelve of these cases have been vaccinated, 11 were unvaccinated, 3 showed no evidence of vaccination, and 1 was vaccinated during the incubation period of small-pox. The total number of cases of small-pox occurring in vaccinated persons during the 11 months was 271 and the percentage rate of deaths to cases in this class irrespective of age was 4·4. The total number of unvaccinated cases, including those which showed no evidence of vaccination or were vaccinated only during the incubation period of small-pox was 625, and the percentage rate of deaths to cases in this class, irrespective of age, was 2·4. In 6 cases no information is available as to vaccination. There were no fatal cases among vaccinated persons under 35 years of age.

Miner's Nystagmus.

Mr. DAVID GRENFELL asked the Secretary for Mines the number of claims for compensation for miner's nystagmus which were reported in each of the four preceding years; and whether he would institute a commission of inquiry into the causes of this disease, with the view of eliminating the industrial loss and the personal suffering consequent upon its prevalence in the mining industry.—Lieut.-Col. LANE-FOX replied: According to statistics furnished by the Home Office the total number of workmen in receipt of compensation for nystagmus was 6449 during 1919, 7028 during 1920,

and 6717 during 1921. Statistics on this point were not collected for the year 1918. At the request of my advisers an expert committee of inquiry into the causes of nystagmus was set up by the Medical Research Council in 1920. The first report of the committee was published at the beginning of this year and the committee is still at work.

The Personnel of Medical Boards.

Mr. SHORT asked the Minister of Pensions whether the medical boards were composed of permanent officers of the Ministry; if so, the number of officers so employed and their salaries; and, if the boards were composed of medical men drawn from panels of local practitioners, the fees paid for individual examination and the total cost for 1921 for such payments.—Major TRYON replied: The personnel of the medical boards of the Ministry is very largely drawn from local practitioners, who receive the following fees: chairman, £1 11*s.* 6*d.* for a session of two and a half hours; specialists, £2 2*s.*; ordinary members or assessors, £1 6*s.* 3*d.* Considerable assistance is now given on this work by full-time medical officers of the Ministry, of whom some 200 are liable for this service as part of their duties. The average salaries of these officers is approximately £924 per annum. The total expenditure on payments to sessional members of the boards was, in 1921, £627,795. The corresponding figure for the current year will be more than one-third less, owing to a reduction of the sessional fees payable, and of the number of members of ordinary boards from three to two.

Medical News.

UNIVERSITY OF OXFORD.—At recent examinations the following candidates were successful:—

EXAMINATION FOR DEGREE OF M.B.

Materia Medica and Pharmacology.—C. E. Beveridge, New; W. B. Boon, Lincoln; C. W. Carter, Queen's; D. R. Gawler, University; L. N. Jackson, Balliol; T. L. Ormerod, Queen's; H. A. Robertson, Balliol; B. E. Tompson, Brasenose; G. I. Wilson, Queen's; G. P. Wright, Exeter; Olive B. Buckley and Matilda E. Bugnion, Somerville; Ella Cockram, Oxford Home Student; and Cicely Williams, Somerville.

Pathology.—D. T. Barnes, St. John's; A. M. Cooke, Jesus; H. N. Elphick and P. H. Martin, New; G. F. Mitcheson, Christ Church; A. A. F. Peel, University; H. A. Robertson, Balliol; A. W. L. Row, Brasenose; T. E. Ryves, Trinity; B. G. Scholefield and A. W. L. Stevens, Christ Church; E. B. Strauss, New; T. S. Townsend, Jesus; H. F. Turney, Magdalen; W. R. Wood, Pembroke; Alice E. Harding, Oxford Home Student; and Cicely Williams, Somerville.

Forensic Medicine and Public Health.—R. V. Facey, Brasenose; R. F. Johnstone, St. John's; T. L. Ormerod, Queen's; J. P. Shaw, Balliol; A. W. L. Stevens, Christ Church; E. H. Watkins, Hertford; A. Q. Wells, St. John's; Norah E. Bodkin, Oxford Home Student; Dorothy W. Crook, Somerville; Sibyl R. Eastwood, Oxford Home Student; and Katharine M. Hodgkinson, Somerville.

Medicine, Midwifery, and Surgery.—W. R. Brain, New; E. Chapman and D. S. Davies, Magdalen; H. A. Gilkes, Christ Church; J. G. Johnstone, St. John's; C. R. Lane, New; Dorothy J. Collier, Oxford Home Student; Katharine M. Hodgkinson, Somerville; and Constance M. Ottley, Oxford Home Student.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—An ordinary Council meeting was held on Dec. 14th, Sir Anthony Bowlby being in the chair. A report was read from the Court of Examiners respecting candidates found qualified for the diploma of Fellow, and diplomas were awarded to the following 23 candidates:—

Alan C. Ainsley, Cambridge and London; R. B. Chandrachud, Bombay and Guy's; Charles O. Davies, Liverpool; John Ll. Davies, Cambridge and St. Bart.'s; Roland A. H. Fulton, Otago and London; Charles L. Gimblett, Cambridge and St. Thomas's; Aubrey Goodwin, Univ. Coll. and St. Thomas's; Arthur C. Halliwell, St. Thomas's; Ivan B. Jose, Adelaide and London; Nathanael J. Judah, Edinburgh and St. George's; Leonard C. E. Lindon, Adelaide, London, and Guy's; Samuel D. Lodge, Leeds and London; Norman P. L. Lumb, St. Thomas's and London; Herbert L. Sackett, St. Bart.'s; John F. H. Stallman, Guy's; Mildred Warde, Royal Free; Gilbert C. Wellish, Sydney and London; John G. Whitaker, Melbourne and London; Horace P. W. White, Edinburgh and London; David Whyte, Otago and London; Valentine Wilkinson, Univ. Coll. and Guy's; Reginald S. Woods, Cambridge and St. George's; and Arthur D. Wright, St. Mary's.

In addition to the above Mr. M. W. B. Bulman satisfied the examiners, but had not reached the requisite age for the granting of the diploma.

A report was read from the Board of Examiners in Dental Surgery respecting candidates found qualified for the Licence in Dental Surgery, and licences were awarded to the following 84 candidates:—

R. C. Andrews, Guy's; S. Attwooll, Royal Dental; W. O. Bailey and D. J. Baker, Guy's; C. T. Bason, Birmingham; G. Beamish, Guy's; R. F. Binns, London; C. C. Brattle and A. J. Britz, Guy's; M. F. S. Burger, London; T. C. Butler and A. Clarke, Guy's; E. J. Cloke, Univ. Coll.; A. J. Constance, Bristol; D. E. Davies, Royal Dental; J. S. Dick, Guy's; W. T. L. Douglas, London; J. E. H. Duckworth, Guy's; H. A. Edmonds, T. E. Ellis, and A. B. Evans, Royal Dental; L. Evans, Guy's; R. H. Faure, Royal Dental; F. J. Fourie, Guy's; G. Freedman, Royal Dental; F. C. Gardenner and A. S. T. Garland, Guy's; Violet H. George, Royal Dental; L. J. Godden, G. W. Griffiths, G. T. Hankey, L. B. Helder, J. B. Hine, and S. T. Hine, Guy's; F. G. Hollier, Royal Dental; K. Hooper and J. A. Hudson, Guy's; A. E. T. Hunt and T. Hunt, Birmingham; F. G. Hutchinson, Guy's; H. W. Jones, Royal Dental; L. T. Jones and G. Kilvington, London; J. S. Lycett, Sheffield; G. D. Margetts, Royal Dental; A. G. Maudsley, Univ. Coll.; S. Mellor, Sheffield; R. H. Muller, Guy's; A. H. Murch, Royal Dental; F. A. Nicolai, Guy's; A. Pain and Margery G. Pain, Univ. Coll.; M. Patlansky and A. F. Porter, Guy's; R. V. Power and H. D. Roberts, Royal Dental; B. Rubinstein, E. Samuels, S. E. Sennitt, E. A. Sheppard, and H. Slater, Guy's; S. G. Smith, Royal Dental; W. G. Smith, Bristol; C. H. Stevens, Guy's; F. B. Stevens, J. W. Stretton, and J. N. Strickland, Royal Dental; W. H. Taylor, Guy's; A. F. Tunstall, London; F. E. Turley, Royal Dental; C. E. Turner, London; A. K. van Niekerk and H. J. Walters, Guy's; H. H. Watkins, Bristol; H. Wayman, Guy's; L. F. C. C. Whateley, Royal Dental; A. S. Whittaker, Manchester; C. Williams, London; W. J. Williams and C. B. Wilson, Guy's; L. W. Wilson, London; M. B. Wilson and W. H. Wilson, Royal Dental; and O. H. M. Woodbridge, Guy's.

A report was read from the Board of Examiners in Dental Surgery, with reference to the revised regulations for the Licence in Dental Surgery to come into force on Jan. 1st, 1923, which were approved and adopted.—The President reported that, owing to the illness of Sir Arthur Keith, the Hunterian lectures arranged for Jan. 15th, 17th, 19th, 22nd, 24th, and 26th, 1923, would be postponed until March or some later time, of which due notice would be given.

At the Primary Examination for the Fellowship of the College, which concluded on Dec. 15th, 152 candidates presented themselves for examination, of whom 56 were approved and 96 were rejected. The following is a list of the names and medical schools of the successful candidates:—

C. B. Andreae, Guy's Hosp.; I. C. P. Beauchamp, Cambridge and Guy's Hosp.; L. A. Bennett, Otago, London, and Middlesex Hosps.; H. J. Bhatia, Bombay and London Hosp.; B. Bourke, Dublin and Middlesex Hosp.; G. J. Bowen, Middlesex and St. Mary's Hosps.; J. Brumwell, Durham and St. Mary's Hosp.; J. D. M. Cardell, St. Thomas's Hosp. H. K. Christie, Otago and Middlesex Hosp.; C. C. Coghlan, Sydney and St. Mary's Hosp.; W. M. Cotter, New Zealand and St. Bart.'s Hosp.; W. I. Daggett, Cambridge and King's Coll.; R. K. Debenham, Cambridge and London Hosp.; A. M. Deif, Cairo and Guy's Hosp.; J. D. Dhruv, Bombay and St. Thomas's Hosp.; T. A. J. M. Dodd, Oxford and St. Bart.'s Hosp.; K. M. K. Duff, Guy's Hosp.; F. J. T. Foenander, Ceylon and Middlesex Hosp.; D. Frost, London Hosp.; J. A. Galletly, Cambridge and Middlesex Hosp; H. H. Gellert, Edinburgh and St. Mary's Hosp.; A. S. Gough, Guy's Hosp.; Agnes H. S. Gray, London and London Sch. of Med. for Women; C. M. Greenslade, Otago and St. Bart.'s Hosp.; E. J. Greenwood, Cambridge and Guy's Hosp.; A. L. Gregg, Dublin and St. Mary's Hosp.; Dorothy W. Hall, Liverpool and St. Mary's Hosp.; R. J. B. Hall, Otago and St. Bart.'s Hosp.; A. J. C. Hamilton, Edinburgh and London Hosp.; R. W. Jones, Liverpool; S. Kadinsky, Westminster, King's, and Middlesex Hosps.; F. H. King, Cambridge and St. Mary's Hosp.; D. Lurie, Cape and Oxford; G. E. Mackay, Melbourne and Middlesex Hosp.; D. H. MacLeod, Middlesex Hosp.; A. McMillan, Birmingham; Alice M. C. Macpherson, London Sch. of Med. for Women; D. P. Marks, Cambridge and St. Thomas's Hosp.; D. V. Murphy, Cork and St. Mary's Hosp.; A. E. Park, Otago and Middlesex Hosp.; H. L. Peake, Guy's Hosp.; Annie Pichaimuthu, Madras and Royal Free and Univ. Coll.; G. H. Pitt, Guy's Hosp.; W. A. Richards, Charing Cross and St. Mary's Hosps.; E. W. Riches, Middlesex Hosp.; C. R. Sandiford, Manchester and St. Mary's Hosp.; C. Satyaraju, Madras and St. Mary's Hosp.; T. Seshachalam, Madras and London Hosp.; R. C. Shaw, Manchester; G. S. Sinnatamby, Ceylon and St. Mary's Hosp.; N. R. Smith, Sydney and St. Mary's Hosp.; G. H. Steele, Univ. Coll. and St. Mary's Hosp.; H. G. Taylor, Cambridge and St. George's Hosp.; S. P. Taylor, Bristol; C. H. Thomas, St. Bart.'s Hosp.; A. H. Whyte, Durham, St. Bart.'s, London, and Middlesex Hosps.

UNIVERSITY OF LIVERPOOL.—At examinations recently held the following candidates were successful:—

FINAL EXAMINATION FOR DEGREES OF M.B., CH.B.

Part I.—B. E. Acland, Grace A. Austin, C. B. Bamford (distinction in Pathology), R. V. Berrington, C. H. Bradley, R. S. Brock, Helen S. H. Brown, Alison M. Brummitt, M. Byala, A. Cooke, J. W. Cowen, J. D. Craig, M. M. Datnow, Edwina M. Davies, Eileen N. Deane, W. T. Donovan, J. C. Drummond, H. Duff, H. W. Fell, H. R. Fisher, G. A. Fulton, J. Gaughan, Clara M. V. Gleave, H. Gobie, T. A. Griffiths, D. C. G. Hanlon, Dorothy M. Hanson, Fannie S. Holt, J. E. Howie, G. P. Huws, C. P. Jones, R. Jones, A. L. Kerr, G. F. Kinder, J. Leggate, W. E. Lishman, J. H. M. Little, G. Lowe, G. Macdonald, Margaret S. Macdonald, D. D. O. McLoughlin, G. A. Moulden, A.

Newton, J. R. R. Nicholas, W. E. Pennington, A. Pool, R. J. Prydderch, Gwendolen ff. Roberts, J. T. C. Roberts, E. Rowlands, E. Scott, C. Sharp, G. V. L. Taylor, Marjorie A. Unsworth, N. Weinberg, R. S. Welton, T. W. White, and Gwennie Williams.

Part II.—Mary G. B. Allen, W. J. B. Chidlow, A. Cooke, L. Davies, Kathleen Edgecombe, W. R. H. Ellis, E. J. Foley, N. D. Fraser, S. C. Goldstone, H. Graf, W. J. Griffiths, A. J. Hawe, D. Kippax, D. D. O. McLoughlin, Phyllis Marsh, Margaret D. T. Mills, Dorothea W. Rogers, P. J. Rogers, J. F. D. Shrewsbury, Helen Standring, and Mabel J. Watterson.

Part III.—Eleanor E. Briant, D. Brown, G. Clark, Marie B. Clarke, H. M. Cohen, R. L. Corlett†, R. W. Cowie, W. H. A. Dodd (distinction in Surgery), J. Elsohn, W. C. Evans, F. S. Fowweather, H. S. Gordon, S. B. Hall, G. M. Hughes, Hilda F. Jefferson, I. Lloyd, Vera M. Mitchell, Annie R. Niven, Mary E. Nosworthy, J. R. Parry, G. F. G. Prideaux, C. C. L. Spurring, V. T. Thierens, Mary A. Thomas, L. F. Unsworth, A. Weisberg, and D. A. Woodeson.

DIPLOMA IN TROPICAL MEDICINE.

M. J. Cohen, A. C. Crawford, C. M. Gracias, W. A. Lethem, and S. D. Ricley.

UNIVERSITY OF EDINBURGH.—At the graduation ceremonial held in the M'Ewan Hall on Dec. 15th the following degrees were conferred:—

DOCTOR OF MEDICINE.

David Aiken, John Brander, *George A. Casalis de Pury (in absentiâ), ‡John H. Crawford (first-class honours), *Bernard V. Dunn, John D. Ingram, James Mackenzie, †Duncan M. Morison (second-class honours), (in absentiâ), Terence C. St. Clessie Morton (in absentiâ), Henry J. Parish, *George S. Sowden, *James Walker and Lloyd-Werden (in absentiâ).

* Commended for thesis. † Highly commended for thesis. ‡ Awarded Gold Medal for thesis.

BACHELOR OF MEDICINE AND BACHELOR OF SURGERY.

Mahmoud Soliman Abaza, Stanley C. Alcock, Isabella H. Allan, William Anderson, Jean V. Andrew, Margaret S. R. Armstrong, Montague P. Atkinson, Cyril J. Austin, Leslie C. L. Averill, Petrus J. Badenhorst, John B. S. Baxter, Lilias Frances E. Begg, Margaret I. Bower, James Brown, Eleanor M. Cadman, Angus H. Campbell, John M'Phail Campbell, Mary J. Cheng, Daniel Stewart Cherry (second-class honours), Irene V. E. Christison, Joseph J. Coulthard, Robert T. Deas, Kenneth S. Dick, James L. N. Dinwiddie (second-class honours), Grace M. F. Dover, Grace W. W. Eason, Edward C. Ellis, Duncan L. Ferguson (in absentiâ), Nathaniel Fram, James Glover, Richard T. F. Grace, Annie C. S. Haddow, Henry R. Haigh, Margaret M. R. Hamilton, Harry Hastings, Henry D. Hayes, Flora M. Hogg, Charles F. W. Illingworth, Alastair K. James, Lionel B. Jones, Margaret W. Kemp, Gabriel G. King, Bennie Leader, Robert C. Little, Elizabeth T. Logan, Douglas B. M'Crie Lothian, Duncan T. M'Ainsh, Ian H. M'Clure (second-class honours), Fritiof N. M'Farlane, Annabella M'Garrity, John C. Macgown, Elizabeth M. Mackay, Arthur W. Mackie, William M'Kie, Marjorie C. Mackintosh, Ian F. Macleod, Robert A. C. Macnair, James M. Manson, Grace J. Marshall, Kenneth A. T. Martin, Frederick G. J. Mulder, Charles L. L. Murray, Solomon Petkoon, Johanna V. Pietersen, Elsie Porter, Jean S. Riach, Thomas Ritchie, Solomon J. Rom, Isobel S. Rutherford, Roy M'Gregor Saunders, Annie B. A. Scott, Robert Selby, David Slight, Flora M. Stewart, David Summerville, Brian G. Thompson, Charlotte E. W. Thompson, Elizabeth N. Thompson, Harold V. Thwaites, John Todd (second-class honours), Isabella du Toit, Harold R. Vernon, Henry L. Wallace, Reginald W. R. Watson, Hazel Helen F. Watt, James Williams, Margaret S. Williamson, Rowland P. Wilson, Morris Witkin, and William Woodburn.

The Freeland Barbour Fellowship has been awarded to Jessie Eccles.

ROYAL STATISTICAL SOCIETY.—At a meeting held on Dec. 19th Mr. T. T. S. de Jastrzebski read a paper on Changes in the Birth-rate and in Legitimate Fertility in London Boroughs, 1911 and 1921. He said that a comparison between the crude birth-rate in the Administrative County of London showed that in the nine months following the Census of 1921 there was a fall of 9·4 per cent. from the same period of 1911, although the proportion of married women under 45 years of age in the population should have given an increase of 1·7 per cent. The decline in infant mortality, however, reduced the fall in the effective birth-rate—i.e., the rate obtained by deducting the deaths under 1 year from the births—to 4·2 per cent. Legitimate fertility showed a decline of 12·8 per cent., or when standardised for variation in the ages of the married women under 45, of 11·7 per cent. The gap between the boroughs with better economic conditions and those with a poorer population had diminished sensibly. Notwithstanding the fall in both the birth-rate and in legitimate fertility, the natural increase by excess of births over deaths in 1921 was 390,335 as against 354,328 in 1911, and this gain was at the first period of life. There was no reason to consider an infant mortality of between 50 and 60 per 1000 births as beyond the scope of our legitimate expectations. In the view of the speaker the reproductive forces at work in the nation are greater than the destructive, and the problem of the immediate future is one of over, rather than of under-population.

SOCIÉTÉ INTERNATIONALE DE CHIRURGIE.—The sixth triennial congress of this Society will be held in London from July 17th to July 20th, 1923, and a provisional programme has been issued. The congress is under the patronage of His Majesty the King and the Presidency of Sir William Macewen. The meetings will be held at the Royal Society of Medicine, and the subjects chosen for discussion are: (1) The Surgery of the Endocrine Glands, with the exception of the Thyroid; (2) Arthroplasty: (3) The Late Results of Surgical Intervention in Traumatic Lesions of the Peripheral Nerves; (4) Sero- and Vaccino-therapy of Surgical Infections with the exception of Tetanus: (5) Operative Shock. The inaugural meeting will take place on Tuesday, July 17th, at 11 o'clock, when H.R.H. the Prince of Wales will open the congress. Scientific sessions will be held on Tuesday afternoon and the three following mornings. Operations and demonstrations will be arranged for at the various hospitals on the last three days of the congress. A collection of pathological specimens illustrating diseases of the endocrine glands will be on view at the Royal Society of Medicine. Hospitality will be extended to members of the congress by His Majesty's Government, the Lord Mayor of London, the Royal College of Surgeons of England, the University of London, and the Barbers' Company.

The organising secretaries are Sir D'Arcy Power, K.B.E., and Mr. J. E. H. Roberts, O.B.E. The British Secretariat is at 26, Harley-street, W. 1.

TYPHUS FEVER IN NORTH-WEST MAYO.—There has recently been an outbreak of typhus fever in the Erris district of West Mayo, in regard to which the Minister for Local Government, Mr. Ernest Blythe, gave some particulars in Dail Earann last week. He said that the outbreak had begun in June last, and 20 cases had come under notice, including the sanitary sub-officer and a nursing sister, who had contracted the fever in the discharge of their duties. The source of the infection appeared to have been a disused coastguard station, in which families crowded, deserting their homes. Belmullet had long been recognised as a district in which typhus fever might be said to be endemic. The population was very poor, living in small and congested homes, with primitive habits, and the practice of housing animals in dwellings still persisted.

ASSOCIATION OF COUNTY MEDICAL OFFICERS OF HEALTH: ANNUAL DINNER.—This Association met on Dec. 15th in Pagani's Rooms, London, W., at their first social function or dinner since the creation of the conference in 1906, which preceded the formation of the Association in 1911. Dr. G. Reid (Staffs) occupied the chair and the guest of the evening was Sir George Newman; 32 members were present. The President, in proposing "The Guest," reviewed briefly the evolution of the Association and its relation to legislation, to the Government Public Health Departments, to the British Medical Association, and the County Councils' Association. Dr. A. Bostock Hill, supporting the toast, eulogised the excellent work of Sir George Newman as a friend, adviser, and colleague. Sir George Newman replied in a pithy speech, in which he reviewed his work and relationship to the profession. He felt amply rewarded by the friendship returned by the county medical officers of health. The health of the chairman, Dr. Reid, and the hon. secretary, Dr. J. R. Kaye, were duly proposed, and the proceedings created a unanimous demand for an annual repetition of the dinner.

MEDICO-LEGAL SOCIETY ANNUAL DINNER.—This dinner was held on Dec. 15th at the Holborn Restaurant, London, Lord Justice Atkin presiding. Amongst the guests invited were Sir Chartres Biron, Sir Ernley Blackwell, Sir Anthony Bowlby, Mr. Justice McCardie, Mr. Copson Peake, Sir Humphry Rolleston, Sir F. J. Willis, and the Master of the Society of Apothecaries. Earl Russell, in proposing the toast of "Medicine and Law," mentioned a most important discussion which the Society had held during the present year—namely, that on Professional Secrecy, which had been opened by Lord Dawson. That discussion had done a great deal in that it had helped medical men to understand the legal standpoint and had assisted lawyers to understand the medical aspect, and he felt that the chief reason for the divergence of opinion which did exist between the two professions was that the interests of the lawyer were centred in the community as a whole, whilst the doctor had more especially the interests of the individual patient at heart. Mr. Justice McCardie, in proposing the toast of the Medico-Legal Society, welcomed every branch of science to aid the proper administration of justice. With the advance of knowledge the law must not stand still, therefore the law of yesterday did not serve the purpose of to-day. Medicine and law must progress together to fight disease and crime. The President, in reply, announced that the Society had just come of age, having been 21 years in existence. Never had it been in a more flourishing state than at the present time, and its prosperity was assured by the steady influx of new members.

OLD EPSOMIAN CLUB ANNUAL DINNER.—This dinner was held at the Trocadero Restaurant, London, on Dec. 14th. Dr. H. F. Ealand, President of the Club, presided over a large gathering of members and guests. The club had the pleasure of welcoming for the first time the new headmaster, Mr. Arnold Powell, who, in replying to the toast of the College, outlined the year's doings at the school, its present prosperity, and its hopes for the future. He had found only one disadvantage at Epsom, and that was the very large proportion of boys who were in one way or another associated with the medical profession; he was of opinion that a serious attempt should be made to widen the sphere of influence of the school. Lord Dawson, who replied to the toast of the visitors, applied the remarks made by Mr. Powell to the medical profession as a whole, remarking that it had been far too isolated from the rest of the body politic. He said that its influence was increasing, and many other professions were coming into the closest contact with it. He concluded that much more remained to be done before the profession exercised that influence on the body politic due to its numbers and its culture.

LONDON HOSPITAL MEDICAL COLLEGE: LIDDLE TRIENNIAL PRIZE.—This prize for 1922–23 (value £120) will be awarded for an essay, to be handed in on June 30th, 1923, on the subject of Rheumatic Fever, its Cause and Prevention. The prize is open to public competition, and the conditions governing its award may be obtained from the Dean of the College, Mile End, London, E.

BETHLEM ROYAL HOSPITAL POST-GRADUATE COURSE.—A course of lectures and practical instruction for the Diploma in Psychological Medicine granted by various universities will be given at Bethlem Royal Hospital, commencing on Jan. 15th, 1923. The lecturers on Neurology will include Dr. S. A. Kinnier Wilson, Dr. C. Worster-Drought, Dr. F. C. E. Danvers-Atkinson, Dr. Clement Lovell, and Dr. James Collier. Dr. William Brown and Dr. J. A. Hadfield will lecture on Pyschology and Dr. A. F. Tredgold on Mental Deficiency, while Psychological Medicine will be dealt with by Dr. E. D. Macnamara, Dr. W. H. B. Stoddart, Dr. J. G. Porter Phillips, Dr. Thomas Beaton, Dr. C. Stanford Read, Dr. M. Hamblin Smith, and Dr. R. H. Cole. The lectures are divided into two parts. The fee for the full course is 15 guineas and the fee for part A or part B separately is 10 guineas. Entrants who take the complete course may attend the daily clinical practice of the hospital at a reduced fee. For syllabus and all particulars, application should be made to the physician-superintendent, at the hospital, Lambeth-road, London, S.E. 1.

MODIFIED MILK FOR INFANTS.—The Walker-Gordon Laboratories, Ltd., which, owing to difficulties connected with the war, had to be closed down in 1916, have recently re-equipped their farm and reopened business. These laboratories can undertake to supply milk modified to any percentage of fat, lactose, and protein content, on physicians' prescriptions, and also to supply unpreserved and unpasteurised cream of any percentage of butter fat desired. The laboratory also prepares milk and cream for ocean voyages, milk for shipment being packed in strong refrigerator cases and consigned to the port of embarkation for immediate delivery to the ship's steward. At the laboratory farm at Wembley every cow is inspected weekly by a veterinary surgeon, and sick and ailing cattle are segregated. The employees are examined medically every fortnight and are not allowed to come to the laboratory or farm when indisposed. Further details and price list may be obtained on application to the laboratories at 51, Weymouth-street, London, W.

CHRISTMAS AND NEW YEAR GREETINGS BY CABLE.—The Postmaster-General announces that special arrangements have been made for the delivery in Australia, New Zealand, and Canada, on Christmas Day and New Year's Day, of telegrams of greeting sent from this country by the Imperial Cables. Messages for Australia or New Zealand should be handed in at post-offices not later than Thursday, Dec. 28th, for delivery on New Year's Day. They will be charged quarter rates (9*d.* a word to Australia and 8*d.* a word to New Zealand), with a minimum of 10 words. Messages of greeting for Canada should be handed in not later than to-day, Saturday, Dec. 23rd, for Christmas delivery, or Dec. 30th for New Year's Day. The charge will be that for messages sent by the night letter service to Canada "via Imperial," with a minimum of 10 words. The rate to the Eastern Provinces (Montreal, Ottawa, Toronto, &c.) is 3*d.* a word. The rates to the Western Provinces are slightly higher. Christmas messages must be marked "X. W. T." and New Year messages "Y. W. T." (charged for as one word) immediately before the address, and routed "via Imperial."

POST-GRADUATE COURSE ON INFANT AND CHILD WELFARE.—A course of 12 lectures on the Management and Feeding of Infants and Young Children will be given by Dr. Eric Pritchard, medical director of the Hospital, to qualified practitioners, at the Infants Hospital, Vincent-square, London, beginning Jan. 15th, 1923. Students taking the course will be entitled to attend the round-table consultations held by Dr. Pritchard on Tuesdays and Fridays, at 2 P.M., with cases in the wards of the hospital. Tickets for the course, two guineas. For further information apply to Mr. A. J. Small, Secretary, the Infants Hospital, Vincent-square, S.W. 1.

THE LATE DR. H. LUCAS.—Dr. Herbert Lucas, who died at Huntingdon on Dec. 10th at the age of 80, was born at Hitchin and received his medical training at Guy's Hospital, London, where he took the M.R.C.S. and L.S.A. in 1865. He went into partnership with Mr. Michael Foster at Huntingdon in 1868, incidentally relieving the latter's son, the late Sir Michael Foster, from general practice to take up research work. He continued to practise until 1917 when failing health caused him to retire in favour of another old Guy's man, Dr. C. E. Hicks, who had assisted him for 17 years. Herbert Lucas was for 40 years surgeon to the Hunts County Hospital and held nearly all the local public medical appointments. In addition to his strenuous professional life he was a keen cricketer and a well-known figure in the hunting field.

INTERNATIONAL ILLEGITIMACY STATISTICS.—In reply to a question from Mr. Snowden addressed to the Minister of Labour as representing the Ministry of Health, the most recent statistics of illegitimacy in this country and on the Continent were recently given as follows:—

—	Year.	Number.	Rate per 10,000 total live births.
England and Wales	1921	38,618	455
Scotland	1921	8,756	711
France	1913	65,568	879
Italy	1917	32,933	477
Belgium	1913	10,975	641
Holland	1920	4,112	213
Norway	1917	4,466	699
Sweden	1917	18,960	1,494
Denmark	1919	7,170	1,043

Appointments.

CRAIG, GEORGINA S., M.B., Ch.B. St. And., D.P.H., has been appointed Assistant Medical Inspector to the Cheshire Education Committee.

GRIFFIN, A. J. B., M.B., Ch.B. Liverp., D.P.H., Assistant Medical Officer of Health for Ealing.

MARTIN, J. P., M.R.C.P. Lond., M.D. Belf., Medical Registrar at St. Mary's Hospital, Paddington.

OWEN, C. S., L.R.C.P. & S. Edin., House Surgeon at the Whitehaven and West Cumberland Infirmary.

Jessop Hospital for Women, Sheffield: PINDAR, DORIS, M.B., B.Ch. Sheffield, and COCKER, DORA, M.B., B.Ch. Sheffield, Assistant House Surgeons.

Vacancies.

For further information refer to the advertisement columns.

Aberystwyth Infirmary and Cardiganshire General Hospital.—H.S. £200.

Ascot, Heatherwood Hospital for Orthopædic Children.—Res. Med. Supt. £850.

Bath, Ministry of Pensions Hospital.—Jun. M.O. £350.

Belfast, Joint Nursing and Midwives Council for Northern Ireland.—Examiners of Midwives.

Birmingham General Hospital.—H.P. and H.S. £70. Also H.S. to Skin Dept. £95.

Cape Town University.—Sen. Lectureship in Physiology. £450.

Cornwall Education Committee.—Deputy Asst. Sch. M.O. £500.

Dreadnought Hospital, Greenwich.—S. for Throat, Nose, and Ear Dept.

Dudley, Guest Hospital.—Asst. H.S. £150.

East London Hospital for Children and Dispensary for Women, Shadwell, E.—Morning Cas. O. £120.

Glamorgan County Mental Hospital, Bridgend.—Jun. Asst. M.O. £350.

Ipswich, East Suffolk and Ipswich Hospital.—H.S. £150.

Jarrow Borough Council.—M.O.H., &c. £750.

Leeds Education Committee.—Asst. School M.O. £500.

Llanelly, Borough of.—Female Asst. M.O.H. and Asst. Schools M.O. £500.

London County Mental Hospital Service.—Seventh A.M.O. £300.

Loughborough and District General Hospital and Dispensary.—Res. H.S. £260.
Manchester, Ancoats Hospital.—Res. Surg. O. £250. Hon. P. and Hon. Radiologist.
Nottingham General Hospital.—Res. Cas. O. £250.
Oldham County Borough.—Asst. Sch. M.O. £500.
Oxford, Warneford Mental Hospital.—Asst. M.O. £350.
Perth Royal Infirmary.—Jun. Res. M.O. £150.
Plymouth, South Devon and East Cornwall Hospital.—H.P. £120.
Prince of Wales's General Hospital, Tottenham, N.—Clin. Assts.
Salford Union Infirmary, Hope, Pendleton, near Manchester.—Third Res. Asst. M.O. £300.
Wakefield, Clayton Hospital.—H.S. £200.
Wigan Education Committee.—Asst. Sch. M.O. £500.

Births, Marriages, and Deaths.

BIRTHS.

BATTEN.—On Dec. 12th, at Ladbroke-square, W., the wife of L. W. Batten, M.B., of Hampstead, of a daughter.
CORBETT.—On Dec. 13th, at Carlton Bank, Harpenden, Herts, the wife of Major W. Victor Corbett, R.A.M.C. (retired), of a son.
MACMANUS.—On Dec. 16th, at Ebury-street, S.W., the wife of Dr. Desmond MacManus, of a daughter.

MARRIAGES.

LOW—TONGE.—On Dec. 13th, at St. Margaret's Church, Cowlinge, Suffolk, William Alexander Low, M.C., M.B., B.S., to Armorel Gladys, daughter of Mr. and Mrs. Gilbert A. Tonge, of Branches Park, Newmarket.
WILSON—LYSTER-SMYTHE.—On Dec. 16th, at St. Jude's Church, South Kensington, Thomas Henry Wilson, M.A. Univ. Dublin, F.R.C.P. Irel., to Gladys Mary, elder daughter of the late Colonel W. Lyster-Smythe, and of Mrs. Lyster-Smythe, of Barba Villa, Westmeath.

DEATHS.

ASHER.—On Dec. 15th, at Round Oak, Weybridge, Morris Asher, L.R.C.P. & S. Irel.
GILBERT.—On Dec. 12th, at "The Elms," Basingstoke-road, Reading, Harry Pearson Gilbert, M.R.C.S., L.R.C.P., aged 68.
ROBERTSON.—On Dec. 7th, at Stirling, the Rev. J. A. Robertson, M.A. Oxf., M.B., C.M. Glasg.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

THE LANCET: SUBSCRIPTION RATES.

INLAND	One Year	£2	2	0
	Six Months	1	1	0
	Three Months	0	10	6
ABROAD	One Year	2	10	0
	Six Months	1	5	0
	Three Months	0	12	6

Subscriptions not paid in advance are charged out at the published price of 1s. per copy, plus postage. Cheques and P.O.'s (crossed "London County Westminster and Parr's Bank, Covent Garden Branch") should be made payable to THE MANAGER, THE LANCET Offices, 423, Strand, London, W.C. 2.

RATES FOR SMALL ADVERTISEMENTS.

Appointments (Public) Vacant ... ...
Asylums and Homes ... ...
Hotels, Boarding Houses, and Baths ..
Books and Publications ... ...
Houses and Estates Wanted and for Sale
Schools, Medical and Preparatory ... ...
Nursing Institutes ... ...
Financial, Official, and other Announcements ... ...
Tutors and Tutorships ... ...
Trade and Miscellaneous ... ...
Practices and Partnerships ... ...
Situations Vacant and Wanted ... ...

Four lines and under, 6s.
Each additional line, 1s. 6d.

RATES FOR DISPLAYED ADVERTISEMENTS.

IN COLUMN.	£	s.	d.	ACROSS PAGE.	£	s.	d.
One inch	0	13	4	One inch	1	6	8
One-eighth Column..	0	15	0	One-eighth Page ...	1	10	0
One-sixth Column ...	1	0	0	One-sixth Page ...	2	0	0
One-quarter Column	1	10	0	One-quarter Page ...	3	0	0
One-third Column ...	2	0	0	One-third Page ...	4	0	0
One-half Column ...	3	0	0	One-half Page	6	0	0
Two-thirds Column	4	0	0	Two-thirds Page ...	8	0	0
Three-quarters Column	4	10	0	Three-quarters Page...	9	0	0
Whole Column ...	6	0	0	Whole Page	12	0	0

Public Companies (Prospectuses) per column line 2s. 6d.

POSITION PAGES.—Terms on application.

Notes, Short Comments, and Answers to Correspondents.

THE PSYCHOLOGICAL TREATMENT OF CRIMINALS IN VARIOUS COUNTRIES.*

BY W. A. POTTS, M.A. CAMB., M.D. EDIN.,
PSYCHOLOGICAL EXPERT TO THE BIRMINGHAM JUSTICES.

THE fact that this subject has been chosen for discussion seems to show that the women of England are dissatisfied with present methods of dealing with criminals, and present methods are certainly not psychological. During the last year more than one book has been published condemning our prison system. Its failure is established by the fact that we still produce numbers of habitual criminals, whom we deal with by alternating periods of treatment and absolute freedom, so that in many instances we obtain neither of our two objects—viz.: (1) the protection of society, and (2) the reform of the individual. Is it possible to obtain better results? There is a growing feeling, not only in this country, but in every English-speaking country and some foreign ones as well, that the time has come when we ought to do so. We must remember, however, in fairness to those who have been responsible for the English prison system, that the reforms introduced during the last hundred years have been numerous and revolutionary. Enormous improvements have been effected. The reason they have not accomplished all we would wish is that they have been worked out on materialistic lines, on the assumption that the delinquent is a wicked person, who does wrong deliberately, that all that is necessary is to shut him up under as hygienic conditions as possible, and that if you shut him up for a sufficient length of time he is sure to see the error of his ways.

That conception of the offender's attitude made punishment so severe in the old days. It has been proved, however, that severe punishment does not necessarily accomplish its object; it does not always deter others, though it has considerable effect in that direction, while so far from making the criminal a better man, it often embitters him, and makes him more desperate and a greater danger to society than he was before. The only way to save the delinquent is to study him, see why he does wrong, and then give him the necessary treatment, both physical and psychological. Sometimes this can be accomplished only by the help of psychology, the science which studies the working of the mind and the principles of conduct. But psychology is a difficult subject, and the new psychology, as it is called, which will help us most is of very recent growth. Therefore, although the time is now ripe for psychological treatment, it could not have been established before. Even now we must be content to advance gradually, because the number of those competent to carry out psychological treatment is limited; if we attempt to advance along psychological lines without skilled direction, the whole movement will be discredited. With the demand, however, will come the supply. It is not sufficient merely to be interested in psychology, and to wish to take it up; the training of a medical psychologist requires the expenditure of time and hard work. The amateur psychologist is one of psychology's greatest dangers.

The Balancing Force of Psychology.

Some people seem to think psychological treatment means leniency. That is not so. Psychology is the balancing force which will steady the pendulum in the middle of its swing from the extreme of harshness to the opposite extreme of leniency. Extremes are always a source of danger; as a matter of fact, in such a case as this extremes meet in failure. Treatment prompted only by leniency will be no more successful than the old-fashioned cruel treatment; it may even be less successful, for lenient treatment usually connotes short treatment, which is useless for many delinquents. Wrong conduct is not the growth of a day; it is the resultant action of forces operating for years. Satisfactory conduct usually requires not only an alteration of the delinquent's mode of life, but of his state of being as well, and therefore takes time. In several cases recorded recently in the papers, magistrates, dominated by the lenient principle, have imposed probation or other restraint for periods which, on the face of it, are inadequate. The wise course is the middle one, erring neither on the side of severity nor kindness; this is the most difficult course to arrange, and sometimes it can only be seen with the help of the psychologist. From what I have said you will understand that you need not be afraid of the psychologist being too soft; the true psychologist will not fall into such an error, for he knows that he must be

* A paper read at the annual conference of the National Council of Women of Great Britain and Ireland at Cambridge.

hard and firm, sometimes even ruthless if he is to do any good. The psychologist is not a person who explains away all bad conduct; he aims rather at finding out what caused that conduct, and then thinking out the form of treatment required to alter it. Actual psychological treatment is not the simple, pleasant procedure many people imagine; it means hard work for both doctor and patient, and is often the reverse of pleasant for the patient. This refers to individual psychological treatment: but we may think of psychological treatment along two lines—first, along general lines arranged by those with psychological experience, with no more special direction for the individual than can be given after a preliminary examination; secondly, by means of individual treatment. Strictly speaking, only the latter is real psychological treatment; in many cases of nervous and mental disorder it is essential, but with the majority of delinquents it is unnecessary. Considerations of time, expense, and so on, put individual treatment out of court at the moment except for a limited number; for them, however, it should be available. In many instances, of course, an occasional psychological treatment, at the beginning or during other treatment, is a great help.

The Mentally Defective.

The demand for psychological treatment for delinquents has come partly through consideration of the mentally defective. The mentally defective, though only a small group—something like 3 per cent.—are a constant and important group among delinquents, being responsible for an amount of crime out of proportion to their numbers. The recognition of the mentally defective as a distinct group had two logical consequences. First, it made us say, before any prisoner is sentenced we must be sure he is not feeble-minded—a fact often overlooked in the past, and sometimes still overlooked. Secondly, it made us ask whether, if mentally defective prisoners are not responsible for their conduct, and if they cannot be benefited by ordinary punishment, there may not be other groups of delinquents who, at the time of their offence, are no more responsible than the mentally defective, and no more amenable to ordinary treatment.

The Psychopathological Group.

Here psychology answers our question with no uncertain voice, and says there is a definite group—viz., the psychopathological—who although unrecognised by the ordinary public, and by the police and magistrates in particular, are recognised by medical psychologists and should be accepted by others. Psychopathological persons differ from the mentally defective in having at least normal intelligence, sometimes more; they are neither mentally defective nor insane. For the time being, however, they are no more responsible than those two groups, but are amenable to treatment. They do not commit crimes because they lack intelligence, but because they are forced into crime by factors in their lives which neither they themselves nor those around them are able to recognise, and over which they have no control. They can only regulate those factors by finding out what they are, and then dealing with them. These are the people who will benefit by psychological treatment; it should be individual, but my experience is that with many delinquents all that is necessary, if indeed anything special is required, is that ordinary treatment should be arranged after a special psychological examination. Continued individual treatment, though helpful, is only necessary in exceptional instances. It is of fundamental importance, however, that in difficult and exceptional cases treatment should not be arranged until there has been a complete examination, both on physical and psychological lines. Another important point is that treatment should begin while the delinquent is still young, or at any rate, while he is still a first offender. It is imperative, too, that treatment should include hard work, productive and remunerative, but not altogether uncongenial; the prisoner must, at any rate for part of his time, have work he likes. There should be opportunity for suitable recreation, and also for any special training that may be required. At the same time, we must aim at preventive treatment through the psychological clinic and the schools; in the past attention has been focussed too much in school on literary training.

Special Legislation for the Mentally Defective.

When we ask what has been done in various countries, we find that few have got beyond the stage of recognising the mentally defective and attempting to sort them out. Several countries have got as far as this, but only England and America have dealt with the mentally defective by special legislation. In some ways America has done more than we have, especially during the war, but we are ahead of America and all other countries in virtue of the fact that England was the first country to have a Mental Deficiency Act, and is still alone in that the Act is applicable to the whole country. In America mental deficiency Acts are not of universal application, having been passed only in certain States. All our colonies, and more particularly South Africa and the Indian Empire, are working up a demand for legislation for the mentally defective, and trying to make the necessary arrangements. Very little special psychological treatment has been arranged. It is only fair to say, however, that the general treatment in French prisons is on sounder lines, from a psychological aspect, than ours. In France the prisoner works for his living and usually makes it; indeed, he does more, for by his remunerative labour he is able often to keep not only himself, but his family, and in addition to leave prison with some money in hand. This is not only a great economic advantage to the State, but also an enormous help to the individual himself, relieving his anxiety about his family, who are saved from the workhouse and diminishing the sense of inferiority and failure which, when continually maintained, is so demoralising to the prisoner. Some people are in prison partly because they are incompetent workers; so far from helping them, we sometimes send them out more incompetent than they were before. In France the prisoner does not go out to work, and then return to prison—a method which might often give good results—but a large workshop established in the prison is placed at the disposal of a manufacturer, who introduces his own machinery, appliances, foremen, &c., and then employs as many prisoners as he has work for, teaching them the work, and paying them at the current rate of wages. It is sometimes said that trade unions would not permit such an arrangement in England, but I am one of those who believe that the workers of England would never object to such beneficial schemes if the case were put fairly before them. Of course, struggling industries would have to be protected, and other safeguards taken. It must be remembered that anything which raises or lowers self-respect and other moral qualities makes all the difference in getting good results. We are too anxious to rub into our prisoners that they are wicked, inferior persons, whereas the truth, if we really knew ourselves, is that with just a little change of circumstance we might have been in the prisoner's place. This leads me to say that in order to understand the criminal we must first really know ourselves. The better we know and understand ourselves, the more nearly we find we are related to the criminal, who we ultimately realise is a very ordinary human being as we also are. In France, Holland, America, and some other countries, discipline in prison is less rigid than ours, apparently with benefit. Japan, like France, also makes use of up-to-date machinery in prison; but we are not altogether behind in this matter, for machinery is installed in two prisons in England.

The Indeterminate Sentence.

I am not aware of any foreign country having taken up actual psychological treatment for delinquents, but Germany, Austria, and Switzerland at least have pioneer medical psychologists well qualified to do so. I have said that our colonies and India are awakening to the necessity of psychological work; the report of the Indian Jails Committee for 1919–20, compiled after visits to the United States, Japan, the Philippines, and Hong-Kong, and exhaustive inquiries as to the procedure in various countries, is extremely valuable. It draws attention to the benefit of the indeterminate sentence, and the parole system, as practised in America, South Africa, France, Norway, Holland, &c. In England we have an indeterminate sentence, but unfortunately it applies only to habitual offenders, and is hedged round with so many difficulties that it is not used as often as it might be. However, it has been so successful that in younger delinquents it would no doubt achieve the best results. The recommendation in the Indian report for special psychological examination of prisoners is unfortunately only a minority report, but it is not likely to remain so always.

Pioneer Work in Delinquent Psychology.

I would like now to remind you of the splendid pioneer work that has been done, and is being done, by some women workers, and in particular, Dr. Mary Gordon, who, after 13 years' experience as an inspector of prisons, has this year produced her book "Penal Discipline."[1] After describing our present methods and showing how they fail, she makes many practical suggestions, especially with regard to examination and classification of the delinquent on psychological lines. Dr. Gordon refers to the wonderful rescue work accomplished by a lady prison visitor in a seaport town. In New Zealand Miss Baughan, who is interested in such work, got permission to go and work in prison for a week as a wardress. She wrote and told me that she had found there were good qualities in every woman in prison; every one of them was fond of children and babies, and all the older women begged her to do all she could to save the young women before it was too late. Her experience makes me think of a young girl described in "English Prisons To-day,"[2]

[1] London: George Routledge and Sons. 7*s.* 6*d.* Reviewed in THE LANCET, 1922, ii., 663.

[2] London: Longmans, Green and Co. 28*s.* Reviewed in THE LANCET, 1922, ii., 663.

another book published this year. This girl behaved very badly in prison, but could always be managed by the promise that if she were good she would be allowed to nurse a baby that had been born in the prison. The truth is that many criminals and delinquents, so far from having no feelings, as many think, have an excess of feeling. Their emotions are badly balanced and uncontrolled. Sometimes they appear to the casual investigator to have no feeling, because they are determined not to show it. Miss Baughan found that many prisoners did not realise they were guilty; of course, they often admit they have committed the offence with which they were charged, but sometimes they do not realise even that; they insist, however, that under the circumstances they were justified in acting as they did. I have seen prisoners in court who obviously were not satisfied with the fairness of the proceedings, although the trial was quite fair, and who plainly showed they thought their punishment unjust. Punishment often does such people more harm than good, unless it has been explained to them how and why they were wrong: by explanation I mean put in such a way that they can grasp it, and that is not an easy thing to do. If I were asked what is the most noticeable error in the way the authorities handle delinquents I should say certainly not deliberate unkindness, but complete misunderstanding of the prisoner's attitude and state of mind.

America is the country where real psychological treatment for delinquents was started, the pioneer being Dr. William Healy. In his book "The Individual Delinquent" he proved up to the hilt that the problem of delinquency can only be solved by individual examination. This work began in America, in some parts of which the arrangements are excellent. But it is not necessary now to go to America to see that kind of work, because the Birmingham scheme makes possible the individual examination of all special cases. In Birmingham, too, we now have a university post-graduate course in crime and punishment. This is the first course of its kind to be established at any university in Europe; we hope it will be extended and become as satisfactory as anything in America.

The Birmingham Scheme for Examination of Delinquents.

The Birmingham scheme for the special medical examination of certain persons before the court owes its origin to the inspiration and enthusiasm of Mr. Gerald Beesley. It was inaugurated immediately after the war, because it had been realised in Birmingham that in spite of the numerous special schools for mental defectives, and in spite of energetic administration of the Mental Deficiency Act (1913), mentally defective persons were still coming before the court in Birmingham and in occasional instances even being sent to prison. It was also suspected that there might be other persons not actually defective, but so unstable as not to be fully responsible, some of whom ought to be treated in other ways than by fine or imprisonment. It was feared that the release from army discipline of such men would lead to their coming before the court in consequence of inability to resist the temptation to drink or incapacity in other ways to adjust themselves satisfactorily to civil life. The working of the scheme soon showed these fears were justified, but it has shown much more than that; it has convinced those of us who are actually engaged in connexion with it that a thorough medical examination is desirable for a larger group of delinquents who require special treatment, although they are neither mentally defective nor insane. Again, I would say how important it is that the examination should be conducted both on physical and psychological lines. In order that special medical examination might be available for every class of case two doctors, Dr. Hamblin Smith and myself, were appointed. Dr. Hamblin Smith is a full-time prison medical officer appointed by the Home Office at the request of the Birmingham justices. I am a private practitioner, appointed for part-time work. As, however, the justices have no funds at their disposal to pay fees, my fees are paid by the Watch Committee, who were willing to coöperate in the scheme. Special examinations are made only at the request of the magistrates. If the case is in prison Dr. Hamblin Smith conducts the examination; if not in prison, I do so. It was arranged that if at any time Dr. Hamblin Smith or I found ourselves in doubt about a case, then the other should be called in consultation. It is also possible for either of us to have a consultation with any other specialist we may consider desirable. There is a further arrangement by which a separate block of the prison, with a separate entrance, is reserved for cases who appear to be not fully responsible and to require individual treatment. It was hoped that this would provide for all those not suitable for prison who ought to be under control; but treatment there can only be serviceable for a small proportion; for a certain number of cases, however, the special block is valuable, and it has often been found better to place there cases who require prolonged observation or investigation. Many cases who are not sent to prison require special treatment. This can often be arranged by placing them on probation, and making it a condition that any medical or other treatment which has been recommended shall be carried out. The Probation Act gives justices great power; it would be more effective if a larger number of cases were medically examined before the conditions of the probation are arranged. I cannot speak too highly of the excellent work done by the probation officers, but it is important to remember that the probation officers are neither medical practitioners no psychologists, and therefore cannot see as much as a medical psychologist who has gone through the long special training required.

To give some idea of how the ordinary investigator may be misled I recall the case of a young girl of 17 who had been stealing. The stealing began at 13; there had been no other wrong-doing. The girl was not defective in any way; her mother appeared to be a good and sensible woman, really anxious to help her. It transpired, however, that she had been married twice; the first husband died of drink, and the second deserted his wife and family. It may be merely a coincidence that both husbands turned out to be bad men, but the psychologist wants to know why the first husband took so much drink and the second one ran away from his wife. No doubt the mother is a good woman, in the narrow sense of the term, but life with her may be very difficult; we can at least say she is not a woman of good judgment, able to profit by the lessons of life, for after one unfortunate experience of matrimony she marries a second man who also turns out to be unsatisfactory. The fact that the mother has got wrong with the daughter, too, also suggests that the mother may in some way be the difficulty. This case also shows how badly adjusted parents lead to unsatisfactory or even delinquent children. It would be unwise to place such a girl on probation, on condition that she lived at home with her mother, without making sure the mother knows how to manage her. Yet this is often done; the kindly magistrate says, "We are going to give you another chance and send you back to your good home and your kind mother," yet all the time he is giving not another chance, but the same chance over again; it will fail unless the conditions are changed, even more certainly than it did before.

It must not be thought, however, that mothers are the only causes of delinquency. Take another example—a boy who started stealing at school. His mother had been divorced, but the father had a splendid record and character; he was an enterprising business man, just beginning to get on his feet in spite of tremendous difficulties. The step-mother expressed great appreciation of her husband, but reading between the lines it was possible to see she already understood how it was the first wife had gone off with someone else. When the boy returned home after he had seen me, his father called him into a room with his mother, and said: "What did the doctor say to you? Did he ask you if your mother had a bad temper?" The boy objected to answering, but the father insisted on his doing so in the presence of his mother. No doubt the father thought he was very clever, and wanted to show his wife and the boy that he knew all about it, just as well as any psychologist; but the truth is that such a man carries with him an atmosphere which makes family adjustment almost impossible. I do not know what sort of man he really is, for he never came to see me, though three different appointments were made. That showed how he dealt with a most important crisis in the life of his only child. He left everything to the mother, and did not even back her up.

These examples show that psychology deals with very fine matter, matter so fine that it is almost impossible to describe its methods to a big audience. In spite, however, of the almost insuperable difficulty of doing so, and of defining the delicate light and shade, I believe some of you will understand, for women are very understanding. Psychology is a deep subject, impossible to teach in one lecture, or indeed in any number of lectures. It can only be taught as it is practised, individually. No one is effective as a psychological practitioner until he has lived through the emotions and psychological experiences he is going to deal with in others. It is not a case of going to the priest and confessing; the penitent only confesses what he knows; the object of the psychologist is to find out all those unseen and unknown factors which are unconsciously producing such havoc in the life.

In conclusion, I must deal with a common objection to psychological treatment, that the study of themselves makes people selfish. The truth is, no one can be really unselfish until he understands how selfish he is. The neurotic mother who takes her daughter away from school in order that she may live at home and wait on the supposed invalid, and become a slave to a degree to which no hired worker would submit, can never be well until she realises how selfish she is. It is no use telling her so, for she is quite unable to see it; only long patient and skilful psychological treatment can bring it home. In time she will see herself as she really is, and then she will have learnt one of the greatest psychological truths, that you must always be sacrificing either yourself or other people.

COLONIAL HEALTH REPORTS.

Grenada.—According to the census taken last year the population of this colony is 66,302. The birth-rate in 1921 was 34·86 and the death-rate 19·5 per 1000. The general health was on the whole satisfactory, for, in spite of an epidemic of dysentery in St. John's which accounted for 61 deaths out of a total of 182 for that parish, the aggregate number of deaths recorded was only 1309, as compared with 1318 in the previous year. The recorded number of deaths from malarial fevers was 69, as compared with 77 in 1920 and 88 in 1919. The free distribution of quinine to the labouring classes continues and certain anti-malarial measures were carried out. The campaign instituted in 1918 for the compulsory treatment of venereal diseases has been steadily prosecuted with good results. The deaths caused by syphilis were 18 in 1921, as compared with 25 in 1920 and 38 in 1919. Owing to the reduction in the number of cases treated in the Yaws Hospital—the direct outcome of the success attending the prosecution of the campaign of intensive treatment of yaws in the districts—that institution was closed on the last day of 1921. A new private ward constructed as a separate building near the Colony Hospital was formally opened by the Governor. It provides accommodation for 6 patients, each in a separate room affording absolute privacy. In addition, a nurses' day recreation room is provided in the basement of the building. The rainfall for the year was 78·71 inches. The maximum temperature in the sun was 152° F. on June 11th, and 93·0° in the shade on Sept. 7th. The minimum in the shade was 68° on March 11th.

St. Helena.—The estimated civil population on Dec. 31st, 1921, was 3670. The number of deaths during 1921 was 24, and of civil births 93. There were also 2 births in the garrison. The illegitimate births numbered 23. The death-rate (6·5 per 1000) was the lowest ever recorded in the island, or probably (writes Colonel R. F. Peel, the Governor) in any other colony. The general health of the community continued to be satisfactory. The infant (i.e., under 1 year) mortality constituted a record—viz., 10·4 per 1000 births; only 1 infant died in 1921, as compared with 7 in 1920. Legislation has come into force forbidding the insurance of children under 5 years old. A mild form of influenza prevailed in the month of September; large numbers were affected, but no death occurred. There were 2 cases of diphtheria in different parts of the island, but no connexion could be traced between them. The mean temperature for the year was 62·9. The total rainfall, as measured at Hutt's Gate, was 4·50 inches, at Plantation 46·17 inches, and at Jamestown 15·05 inches. The weather in St. Helena is apparently getting more and more equable. There is a tendency to record more calm days annually—a few years ago about 8 was usual; in 1921 the number was 30. There were 197 admissions to the hospital during the year, and 5 deaths.

Kenya (known until 1920 as the East African Protectorate).—According to the official report on this colony and protectorate for the year 1920–21 the estimated population comprises 2,330,112 natives, 22,822 Indians, 10,102 Arabs, 3421 Goans, and 627 other non-Europeans. The European population, according to a census taken in April, 1921, consisted of 4736 adult males, 2793 adult females, 1064 males under 16, and 1058 females under 16—total 9651, of whom 9025 were of British nationality, 159 American, 148 Italian, 77 French, 62 Russian, 47 Swedish, and 133 others. Settlers and farmers numbered 1893, whilst 956 were Government officials, 102 military men, 204 professionals, 937 commercials, 559 industrials, 237 missionaries, and 182 employed in personal service. The public health of the colony and protectorate during 1920 again showed an improvement on that obtaining during the war and post-war conditions. Plague problems, however, became increasingly urgent. Epidemics occurred in North Kavirondo, the Kikuyu Reserve, and Mombasa, and an organised campaign of rat destruction was put into operation. In Kisumo 41 cases occurred, with 28 deaths. In North Kavirondo it is estimated that at least 1500 people died of the disease. Plague appears to be enzootic in the Kyambu district near Nairobi. Cases which occurred in Nairobi from November onwards represent the results of the spread of the epizootic into the town, where by the end of the year 25 cases occurred. Twenty-one cases were also admitted to the Infectious Diseases Hospital from outside the township; 33,000 inoculations were performed in Nairobi and 7859 rats trapped. In Mombasa there were 408 cases and 43,030 inoculations. Rat destruction has been unsuccessful in Mombasa. Though malaria occurs throughout the colony and protectorate, it is only the coastal belt, in certain parts of the Nyanza Province bordering on the lake-shore and in the valleys of the larger rivers, that it is a serious factor affecting the prosperity and development of the population. Twenty cases of enteric occurred (7 of them in Nairobi), but with no death. Cerebro-spinal fever occurred only sporadically. Though undoubtedly present in the country for some years, typhus or a typhus-like disease was first diagnosed during 1920; one case was fatal. Increase of staff of medical officers has enabled a start to be made in the scheme for medical facilities in the Native Reserves. The policy is being adopted of attacking the infectious diseases of the country at the root, rather than to treat cases only in the various townships to which disease has penetrated. The system consists in the provision of a central hospital with small dispensaries situated in the denser centres of population. By the end of the year two Government centres had been opened, with (in North Kavirondo) nine dispensaries. The Scotch Mission is also doing medical work of great value among the Akikuyu with the aid of a Government subsidy.

Gibraltar.—In his report on the affairs of the colony for 1921, Major C. W. J. Orr, C.M.G., R.A., Colonial Secretary, states that according to the census taken in June of that year the civil population was 18,540 (8828 males and 9712 females), composed of 16,753 British subjects, 407 aliens resident in the Bay, and 1380 aliens resident in the town. Aliens are only allowed to reside temporarily in the colony under a permit issued by the police. The birth-rate was equal to 25·6 per 1000 of the fixed population; aliens are not permitted to give birth in Gibraltar. The crude death-rate per 1000 of the fixed population was 15·71—that of the total population 16·83. The death-rate from principal acute infectious diseases was 1·78 per 1000 and from pulmonary tuberculosis 1·6 per 1000. The infantile mortality rate of 102·5 per 1000 is still high, though it shows a marked improvement compared with the previous year when it stood at 128 per 1000 births. The general sanitary condition was excellent and with the exception of an outbreak of measles of a mild type the colony has been free from epidemic diseases during the year.

St. Vincent.—The population on Dec. 31st, 1921, was estimated at 45,295 persons. The birth-rate for the year of the estimated population was 38·92 per 1000, and the death-rate 23·36. 70·2 per cent. of the births were illegitimate. The hospital accommodation of the colony consists of the Colonial Hospital, Kingstown (94 beds, including 4 for private paying patients), the District Casualty Hospital, Georgetown (4 beds), and the District Casualty Hospital, Chateaulebair (6 beds). "St. Vincent," writes Mr. W. C. Hutchinson, the Acting Administrator, "is one of the healthiest of all the West Indian Islands. The climate may be divided into two seasons, wet and dry; the dry season from January to May, with an average rainfall of 4·04 inches per month, and the wet season from June to December, with an average of 8·22 inches per month. The coolest months are December to April. The temperature in 1921 varied from 76·9° F. to 80·2°, the mean monthly temperature being 78·8°. The rainfall at the Agricultural Experimental Station in Kingstown, 80 feet above sea-level, was 85·96 inches. Rain fell on 200 days, and the greatest fall on one day was 2·75 inches on Oct. 8th.

A ROMANCE OF MEDICAL LIFE.

AN account of the return from seafaring practice of one John Swayne, licentiate of the College of Physicians in London, and doctor of medicine of the University of Leyden, and of his immediate embroilment in a mystery surrounding a necklace given by George I. to the Schulenberg, to pass later into keeping even less respectable, is the substance of a breezy romance by Dr. H. Harrison.[1] Although the mystery loses something of its interest as the tale wears on, Dr. Harrison has ably called to life days unlike our own in that Kensington was a country village, and highway robbery abounded—yet like them, in that small-pox was abroad, whilst the ruling political motto was *quieta non movere*.

TISSUE-NECROSIS CAUSED BY COLOURED PENCIL.

THE danger of injuries from coloured pencils is brought home by Dr. E. Glass, of Hamburg,[2] who reports a case of a man, aged 22, in whom he found an abscess of the forearm, from which poured brilliant violet pus. The patient had knocked the arm four weeks previously; the skin had not been injured, but a swelling had appeared, which had become very painful in the last week. He looked ill, felt very unwell, and complained of great pain in the arm. After incision the pus was examined and found to contain methyl violet. The wound did not heal, and six days later the abscess was laid more widely open. A small piece of coloured pencil was found surrounded by considerable necrosis of tissue. The patient could not remember any injury with a pencil, but did not deny its possibility. Symptoms were not, however, apparent until after the blow later. Dr. Glass calls attention to the reports of Erdheim in 1914 and 1920 on 21 cases of injuries with coloured pencils leading to necrosis and abscess formation.

[1] The Braganza Necklace. By Herbert Harrison, M.R.C.S. Eng. London: Sampson Low, Marston, and Co., Ltd. 1922. Pp. 280. 6*s*.

[2] Deut. med. Woch., Oct. 13th, 1922.